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ADDRESSES

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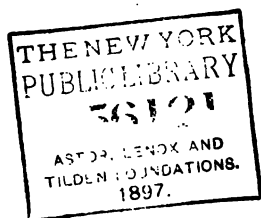
THE WORLD'S RAILWAY COMMERCE CONGRESS,

HELD IN CHICAGO, ILL., JUNE 19-23, 1893.

UNDER THE AUSPICES OF THE
WORLD'S COLUMBIAN AUXILIARY OF THE WORLD'S
COLUMBIAN EXPOSITION.

OFFICIAL REPORT.

CHICAGO:
THE RAILWAY AGE AND NORTHWESTERN RAILROADER.
1893.



WORLD'S RAILWAY COMMERCE CONGRESS.

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WORLD'S RAILWAY COMMERCE CONGRESS.

INTRODUCTORY.

The World's Railway Commerce Congress, which was held in the Art Institute building, in Chicago, during five days of the week commencing Monday, July 19, 1893, was one of the series of remarkable gatherings of thoughtful men, under the auspices of the World's Congress Auxiliary, that formed the distinctively intellectual features of the World's Columbian Exposition. Early in 1892 the originator and president of the World's Congress Auxiliary, Hon. C. C. Bonney, a distinguished member of the Chicago bar, a man fitted by great ability and learning for this special work, and inspired by philanthropic zeal for the enlargement of human knowledge and the good of mankind, laid out his programme of congresses covering all branches of intellectual activity, and selected the committees to organize the different departments. The committee appointed under the general department of "Commerce and Finance," to plan and call a "World's Railway Commerce Congress," subsequently issued the following preliminary circular :

A RAILWAY COMMERCE CONGRESS.—PRELIMINARY ADDRESS.

"NOT THINGS, BUT MEN."

THE WORLD'S CONGRESS AUXILIARY OF THE WORLD'S COLUMBIAN EXPOSITION OF 1893.

President, Charles C. Bonney;
Treasurer, Lyman J. Gage;

Vice-President, Thomas B. Bryan;
Secretary, Benjamin Butterworth.

DEPARTMENT OF COMMERCE AND FINANCE.

GENERAL DIVISION OF RAILWAY COMMERCE.

Among the international congresses to be held at Chicago during the six-months season of the World's Columbian Exposition of 1893, is one on the subject of railway commerce. It is proposed to convene on

that occasion the leading representatives of the railway interests of all countries, for mutual acquaintance and the consideration of the means by which their common interests may be promoted and their general welfare advanced.

Among all the subjects which now deservedly attract public attention, none can exceed in importance that of the transportation of the products in the exchange of which commercial activity exists, and without which the great affairs of civilized life could not be conducted nor even preserved. The creation of the railway world is so recent; its development and progress have been so rapid and so vast; the interests which it embraces are so varied and so extensive, touching the welfare of millions of people on the one hand and some of the most important operations of government on the other, that a proposal to consider these great themes in a world's congress of railway representatives justly deserves and will undoubtedly receive the respect and attention, not only of railway men, but also to a considerable extent of producers, manufacturers and merchants throughout the world.

The developments of the railway business have been so rapid; experiments in railway transportation have been tried in so many localities and under so many different classes of circumstances; and the results of different experiments have so many points of peculiar interest and importance, that there is obviously the highest propriety in convening those who have had the supervision and conduct of those experiments in a congress for the purpose of exchanging views, comparing results, and proposing means by which their mutual interests may be advanced.

A few important facts will emphasize this position. The railway mileage of the world, at the commencement of 1892, was about 395,000 miles, representing a capital which may be estimated on the basis of the latest returns, at about \$25,000,000,000. The United States has now over 171,000 miles of railway, representing a capital of more than \$11,000,000,000. The railway employes of the United States number about 850,000 men, and the railway employes throughout the world would form an army of at least 4,000,000. Every year, according to the average of the last five years, nearly 14,000 miles of railway lines have been built in this and other countries, and when the World's Columbian Exposition shall open, the total mileage of the main railway lines of the globe will doubtless be at least 410,000 miles. It might be supposed that railway statistics of the different countries have been collected from year to year, and are readily accessible to all who may desire to use them, but this is by no means the case. On many important points the most valuable statistics are lacking in whole or in part. One of the benefits to be anticipated from the world's railway commerce congress is the adoption of a world-wide plan for the collection, classification and exchange of statistics in relation to railway mileage, capitalization, equipment, number of employes, and other important relations of railway commerce.

Another subject of immense importance to both the railway companies and the general public, is that of state and national laws for the regulation of railways in their relation to the people, to each other, and to their employes. The deliberate and thoughtful consideration of the practical results of governmental regulation and supervision; of the

question whether such supervision should be restricted or extended ; of the best means of preventing and of settling conflicts between railway companies and their employes, and various kindred subjects, would excite an interest as deep and as widespread as may be anticipated for any other subject which will be presented at any other congress embraced in the entire series.

Such a congress would naturally embrace the railroad commissioners of the various participating states and nations, as well as representatives of various railroad corporations. Such state and national commissioners might appropriately be convened under the leadership of the Interstate commerce commission of the United States, and facilities will of course be afforded for meetings of such commissioners apart from as well as in connection with the representatives of railway companies. Opportunity will be given for a comparison of the methods and results of railway regulation in various countries as presented by governmental officials, in contradistinction to the presentation to be made by railway officials.

To indicate the general scope and purposes of the proposed railway commerce congress, the following themes, suggested by the president of the auxiliary in organizing the department of commerce and finance, are here given for the purpose of eliciting from all who may be interested, the recommendation of such additional or different topics as may be deemed proper for the occasion :

- a.* The origin, development and present condition of railway commerce in different parts of the world.
- b.* The influence of railway commerce on the settlement and development of new countries.
- c.* The practical results of railway commerce to producers, carriers and consumers.
- d.* The proper elements of the cost of safe and efficient service.
- e.* The practical effects of free competition in the construction and operation of railway lines.
- f.* The proper protection of the public rights and interests involved in railway commerce.
- g.* The proper protection of private rights and interests involved in railway commerce.
- h.* Railway strikes; what should be done in the way of prevention and control.
- i.* Railway employes; what should be done for their protection and improvement.
- j.* Railway accidents; their causes and the practicable safe-guards against them.
- k.* Railway receiverships; the practical lessons they teach.
- l.* Governmental regulations of transportation and practical results thereof.
- m.* Freight traffic; special contracts, limitations of common law liabilities, railway clearing houses, traffic pools, etc.
- n.* Baggage; checking systems and delivery; claims for damages, limitations of liability; restrictions of quantity, etc.
- o.* Passenger tickets; defects of existing systems; special contracts and conditions; limitations of time; through tickets; commutation tickets; zone tariffs, etc.
- p.* Police powers of railway train officials, and the best means of guarding against frauds on the carrier and against injury to passengers through accident or mistake.
- q.* Interstate and international railway arrangements; their practicability; the best means for their promotion and their influence on the commerce, peace and prosperity of the world.

The subject of railway construction, equipment and operation has been assigned to the department of engineering, and will there be considered in detail. It was thought important to relieve the railway commerce congress of these topics, in order that the immense public and private interests involved in the subject of railway commerce may have undivided attention.

The congresses of the department of commerce and finance will commence June 19, 1893. The meetings will be held in the world's congress art palace now in process of erection on the lake-front park at Chicago, in which there will be two large audience rooms capable of seating 3,000 persons each, and more than twenty smaller rooms for

meetings of chapters and sections. These places of meetings will be furnished free of expense for the various congresses.

Each congress is in charge of a local committee of arrangements, and this committee will be assisted by an advisory council selected from all of the various participating countries, and consisting of the most eminent representatives of the interests involved. The advisory council of the railway commerce congress will be selected and announced as soon as practicable, and in the meantime the state and national commissioners or other officials of all countries, and the officers of railway corporations throughout the world, are cordially invited to furnish the undersigned committee, at their earliest convenience, with their suggestions of the themes which it would be most useful to consider in the proposed congress, of the persons by whom such themes may most advantageously be presented, and of the modes of proceeding by which the most satisfactory and useful results may be secured.

GEORGE R. BLANCHARD, *Chairman*;
(Chairman Central Traffic association).
HORACE R. HOBART, *Secretary*;
(Vice-President "The Railway Age.")
ALDACE F. WALKER,
(Chairman Western Traffic association).
JOHN NEWELL,
(President Lake Shore & Michigan Southern Ry. Co.)
EDWIN WALKER,
(Director World's Columbian Exposition).
M. M. KIRKMAN,
(Second Vice-president Chicago & North-western Ry. Co.)
JOHN W. CARY,
(General Counsel Chicago, Milwaukee & St. Paul Ry. Co.)
GEORGE B. REEVE,
(Traffic Manager Chicago & Grand Trunk Ry.)
W. H. MCDOEL,
(General Manager Louisville, New Albany & Chicago Ry. Co.)
W. W. FINLEY,
(Traffic Manager Great Northern Ry. Co.)

*Committee of the World's Congress Auxiliary
on a Railway Commerce Congress.*

WORLD'S CONGRESS HEADQUARTERS.
September, 1892.

The committee selected a large list of railway officials and others familiar with railway problems, and engaged in an extended correspondence which resulted in favorable responses from many of the men most eminent in the theory and practice of railway management, whose addresses before the railway commerce congress, here collected, constitute a remarkable body of fact and argument in connection with the great subject of transportation and will be found of lasting value and interest.

OPENING OF THE UNITED CONGRESSES OF COMMERCE AND FINANCE.

ADDRESS OF PRESIDENT BONNEY, OF THE WORLD'S CONGRESS
AUXILIARY.

The greatest idea in the business world to-day is the idea of fraternity and coöperation. We have reached a stage in the evolution of the business world in which the fierce and deadly strife for supremacy, called competition, in which the stronger build up prosperity on the ruins of the weaker; and that next natural development, the substitution of gigantic combinations for competitive strife, are giving place to a third advance, the one of all destined to be enduring, the stage of coöperation. I am well aware that at first glance it would not be supposed that banks, and insurance companies, and railway corporations stand as representatives of coöperation; but I trust it will be shown in the congresses now about to be held that this is strictly true. Of all the institutions of coöperation yet invented, the ordinary banking institution stands preëminently the first; for, what is a bank but a coöperation on the part of its customers in contributing their respective deposits into the hands of the managers and directors of the banks, in order that the funds so contributed may be advanced to the deserving manufacturer or merchant or carrier to facilitate the transaction of his business? And, curiously enough, that one class in which, perhaps, the most prejudice, if not hostility, exists in relation to financial institutions, the agricultural class, is the one which most needs the aid of monetary institutions. The farmer is able to obtain the means from his country storekeeper to plant and sow his crops, to clothe and feed his hands, and wait till the sale of his products enables him to make payment, because the country merchant is given a corresponding credit by the country banker, who in turn is aided by some bank of one of the great financial centers of the country.

I trust that this Congress on Commerce and Finance will aid in bringing financial institutions into closer sympathy with the people of the world, and in dispelling unfounded prejudices in regard to their relations.

But is the grain exchange entitled to a place in the list of coöperative institutions? Put the grain exchange out of existence, and there would be no means by which the producer in Illinois, or Alabama, or Austria, or any other country could ascertain the current range of prices, the state of the demand, and the sources and abundance of the supply. In the great grain centers of the world alone is the business conducted with such general publicity that all changes in prices are instantly known, and instantly telegraphed all over the world. Into these great markets the producers of the world may bring or send their products,

to meet the buyers of the world, either in person or through their representatives. The grain exchange therefore stands as that means by which, better than any other yet devised, the producer and the consumer may be brought together in the best relation for fair dealing with each other.

But the railway corporation of the present age—is not this surely a “giant oppressor”? Without the railroads of the world it would have taken more than ten centuries to reach the present condition of mankind. To take away railways would be practically to bind men to the localities in which they were born, and where most of them would die without ever having seen any considerable part of the world. Take the railways out of existence, and this vast territory, that is called the garden of the world, would not be crowded with a thriving population, as it is to-day. This is not saying that every banker, or even grain exchanger, or railway manager, or merchant has always conducted his business according to angelic principles; for, if he had, he would find himself in a world to which he would not be altogether well adapted. It is enough to say that, as a rule, they have averaged well in the service of the general welfare. But insurance companies—what relation have they to the great current of the business of the world? Here, also, the supreme principle of coöperation has asserted its sway. The insurance company is a device by which many contribute small sums of money for the purpose of paying the losses which the few will suffer. In this way alone can the risks incident to modern commercial and financial operations be adequately met. In this way alone can the many practically contribute to reimburse the losses which otherwise would crush and destroy the few on whom they fall.

Transportation could not be conducted on its present great scale, either by water or by land, if this mode of protecting the property in transit and of distributing the losses in case of damage or destruction were not in operation.

One of the latest devices brought into this field of coöperation is the building association, in which precisely the same principles that have been described are applied to the procuring of homes for the customers of these institutions. In this way, again, the earnings of the many are brought together into a common fund for use by those who need them. Those who have funds to advance contribute them in order that others may borrow, and apply their earnings to repayment in place of rent, until they become home owners instead of home renters.

Here again we recur to the supreme and all-controlling principle which, sooner or later, will bring the whole business world into a condition, not only of thorough organization, but of thorough and friendly relations, and of genuine coöperation. No bank can long thrive except its customers themselves be prosperous. The banker cannot take the substance of his patron, beyond the proper measure, without becoming the foe instead of the friend of the customer, and the ruin of the latter means in the end the injury of the former. No railway line can long thrive unless it be at peace with those who desire to have their property and persons transported along its lines. And the same principle applies to the merchant, the building association, and the insurer. There can be permanent success only when the principles of candor, fair dealing and

honest compensation prevail between those who administer these great agencies of modern civilization and those who serve or patronize them.

Water commerce was to have constituted the seventh general division of this department, but because of the intimate relation between the subject of water commerce and enlargement or construction of waterways, assigned to the department of engineering, the former was transferred, at the joint request of the authorities in charge of the Engineering congresses and those in charge of the Water Commerce congress, to the latter department, which will hold its congress in the week commencing the 31st of July. This leaves six congresses in this department to be held during the present and the following week.

As a concluding thought, I will offer you the suggestion, or reminder, that these great agencies of modern commerce and finance largely hold in their hands the peace of the world. No nation can make war against the will of the men who hold the money of the world, and when the great powers of commerce and finance take their stand on the side of peace, they can do as much to command the peace of the world and stay the havoc of war as any other human agencies. And when these powers are united with moral, social and religious influences working in this direction there can be little cause for fear.

It only remains for me to extend to you, as I now do, a most hearty and earnest welcome, on the part of the World's Congress Auxiliary, to the congresses of this department; on the part of the city of Chicago, to its hospitality; on the part of the state of Illinois, to the great fields in which all the powers of commerce and finance have made wonderful developments; and on behalf of the government of the United States, which has authorized us to speak in its name, I wish you in these congresses, not merely success, for that is already assured, but that you shall have the satisfaction, when these congresses shall have been brought to a close, of feeling that you have materially influenced the public opinion of the world in favor of just dealing and upright conduct in the business world, and the peace and prosperity of all peoples.

PRELIMINARY ADDRESS.

BY THE CHAIRMAN, GEORGE R. BLANCHARD, COMMISSIONER CENTRAL
TRAFFIC ASSOCIATION.

[Delivered at the first meeting of the World's Railway Congress held in connection with the other Congresses of Commerce and Finance, on the evening of June 19, 1893].

Mr. President, Mr. Chairman, Gentlemen and Ladies:

Thousands of passenger trains and a far greater number of merchandise trains are now moving over the world's railways, and in some national or international sense they are pulses of this great Exposition heart. They also are intermingling peoples and their products. On behalf of their owners, managements and employés, I thank you for your welcome to their calling, numbers and achievements, but I wish

that the duty of answering your much appreciated words of cordiality had fallen to others of the guild than myself. We prosaic carriers are not without orators who have won laurels for logic and eloquence, not more in representing their great profession than in other public relations. It would, therefore, be unpardonable to overlook that Watkins, Childers, Neele, Forbes and Tyler of England; Depew, Porter, Alexander, Fink, Cooley and Seargent and others of America, and yet others of all countries, could better fulfill my present office. They, with Ames of Massachusetts, Winans in Russia, Meigs in South America, and many others in many countries have forged the iron ribbons which tie nations together. Such men are here in the living sense of renown, if not in their personalities, and on behalf of them and all of every grade who have labored or now labor in all branches of railway work, I thank you again.

The Transportation building at the Exposition displays two legends; one of Lord Bacon says:

"There be three things which make a nation great and prosperous—a fertile soil, busy workshops, and easy conveyance for men and goods from place to place."

Lord Macaulay says:

"Of all inventions, the alphabet and the printing press alone excepted, those inventions which abridge distance have done the most for civilization."

Mr. Chairman, permit me to claim that it was reserved for our calling to transform the steam of a tea-kettle into a force which has achieved this greatness and prosperity of nations, and has done and is doing most for civilization. It has accomplished more to those ends than statesmen, armies and revolutions. I therefore think, with the ladies, that the crest of progress and cordiality should be a tea-kettle.

I claim for Watts a greater fame than for Peter the Great, William of Orange, or Cavour, Thiers, Bismarck or Gladstone. Aye, even greater than Washington, or Lincoln the undying; for while all these united or preserved each his own nation, Watts' discovery has pulled down the partitions between kingdoms and fashioned the way for the world to become one commonwealth; a commercial republic so universal that the interchanges between its remotest communities are easier and quicker today than in many single countries when Watts watched the steam of that historic kettle sing and lift its lid.

True and great builders and workers for good, therefore, have been those men who have supplied the means, the transportation manager who utilized them, and the humbler laborers who stand at the throttle and the ship's valve.

Without their combined works senates would now be impotent of progress. It is no longer a strife for conquest by arms but by aims. The proofs lie in yonder white cosmopolis, where nations grow more neighborly and cordial daily, and more emulative in the arts which benefit and comfort mankind.

Mr. President, I pause in the adulation for the conceptions and hardihood of Columbus and the small contribution to his purposes from the royal revenues of Isabella and Ferdinand, to give at least equal dues to Headley, Watts and Trevithick, and Fulton, Hudson, Brunel, Thomson and Latrobe. I am more impressed with "The Rocket" of Stephenson, with its fourteen miles per hour in 1825, and with Buchanan's engine 999 at 106 miles per hour in 1893. I concede the courage which

guided the caravels of the great navigator, but let us give equal honor to Robert Fulton, to the architect of the Campania of untouched ocean record, and to the marine achievements of the New York. One such locomotive as the 999, and one such ship as the New York constitute a national procession by land and sea, because nations fall into line behind them. We concede the national courtesies due to the long Castilian descent of our jubilee relative, the Infanta, but I urge a higher recognition for the royal ascent from Trevithick to Corliss and Baldwin, and from Leof Ericson, Vespuccius and Columbus to Roach, Cramp and Harlan. In electrical force from Franklin to Morse, Brush, Green and Houston, and Westinghouse should not go unremembered. We believe all these names stand as the higher types of discovery and progress, and that no other calling represented at this great work and sale shop of nations shows the advance in conceptions and results indicated in the Transportation Building, where electricity and air are the sons and helpers of steam.

The marbles of Praxiteles, the Venus of Milo and the Laocöon still point art students to the higher uses of the chisel. The entrance halls to this room attest the value of the Greek examples. The paintings of Angelo, Murillo and Rubens, Holbein and Raphael, are standards of emulation for pencil, brush and pigment. The temple of Solomon, the Pyramids, the ornate beauties of Indian architecture, the strength and graces of St. Peter's and St. Paul's and the Cologne cathedral remain the most eloquent marvels of uplifted stone.

The able chief of the Transportation exhibit has well said of the architecture of the Exposition palaces, that the greatest adulation they can receive is that they equal the ancient temples of Athens. The beauties of old Etruscan jewels still stimulate our lapidaries and gold-workers. We find excellent substances and forms of potteries in pre-historic mounds, in Pompeii, and in old Dutch blues. The ancient porcelains of China outvalue in texture and hues royal Worcester and Sévres. Peter Vischer worked artistic hammered iron in early days in Nuremberg. We still admire the old Flemish and Gobelin tapestries. There were fine linens and throne robes in the days of the Saviour and Solomon. The elder embroideries of Chinese needles are unsurpassed, and the loom of Jaccard remains the maximum facility of the weaver. Persian and Turkish carpets have not been outcolored since the days of Omar. In all these antiquity is value. Not so with steam transportation and its electrical adjunct. Their riches are modern. They are nineteenth century plants. Nor are they lost arts regained. Steam power is a modern discovery and resource which has made locomotives the comets of the land, freight cars its argosies and Pullman cars its palankeens. From the Egyptian donkeys, which carried water jars from the Nile to adjacent sterility, onward to the compound engines of the Baldwin locomotives and the Majestic, which carry yet greater fructifications, are strides which outwalk all other journeys of thought. Between the old Mohawk & Hudson passenger carriages and the palatial traveling homes of Pullman and Wagner, and from the Santa Maria to the Fuerst Bismarck there are vast steps. Moreover, the exhibits of steam transportation lie almost within two generations. Not until January 1, 1890, did Horatio Allen, who let steam into the first locomotive cylinder in America, touch his eternal pillow. It

is but sixty-eight years since "The Rocket" first ran, and it is fit and just that we acknowledge England as the father of the steam valve and thank the gods the problem was solved in our language and then taught to other nations in theirs. It induces us to condone the tea tax.

When I had the honor to be associated in the management of that pioneer American railway company, the Baltimore & Ohio, I found among its old papers its original stock subscription list. Recorded there were the signatures of an American trio who came to honorable fame. They were Charles Carroll of Carrollton, the last surviving signer of the Declaration of Independence; Roger B. Taney, whose career as Chief Justice of the Supreme Court was a synonym for learning and justice; and George Peabody, of lasting philanthropic memory and benefactions. They represented independence, equity and honorable finance, going hand in hand to secure improved inter-communication. The Baltimore & Ohio company received the first American railway charter February 28, 1827, and when Charles Carroll of Carrollton, laid its cornerstone July 4, 1828, at Mt. Clare, near Baltimore, every one of the historical company present wore a badge bearing his likeness and name. June 10, 1869, less than forty-one years thereafter, the iron rails first laid at Mt. Clare were continuous to the Golden Gate and a golden spike had joined them. It is almost impossible to conceive that the vast American railway system, now 175,000 miles, will only be sixty-five years old next month. The lives of many hale men span from the first meeting of citizens of Baltimore to advocate the work, to the splendid railway contributions and triumphs at the Exposition.

Against the phenomenal land career of this steam prodigy the Campana and New York are the slower growths of centuries of naval architecture. We cannot resist the suggestion that while it took 1,492 years for mariners to get from Palestine to America over the seas, the power of steam traversed a farther distance from Liverpool to San Francisco, over both seas and mountains, in the forty-four years between 1825 and 1869.

Opposing their forces laid the doubts of the world, now vanquished. There are no longer any national frontiers. The world is one domain to the locomotive and the screw. The steam whistle is the earth's huzza, and the throttle and the rudder are the best guides and instrumentalities of human peace and unity. You all remember that a committee of parliament asked Stephenson what the result would be if his locomotive encountered a cow on the track, and his sturdy answer that "it would be bad for the cow." In a larger sense it is bad for any nation which encounters the locomotive and does not get out of its way or into its train, because it is doing wondrous and good things with an irresistible impetus. It made this educational exposition possible. Its whistle resounds to-day in Jerusalem, echoing the Redeemer's injunction to carry good tidings unto all nations. It is hard to foretell its farther destinations and destinies with the help of you gentlemen of commerce and finance. It is pointed toward Alaska. There is a less distance remaining between South and North American rails than from Buffalo to San Francisco, and the Patagonian may yet be reclaimed by it. Buenos Ayres, Santiago and Rio Janeiro may be made suburbs of

this Union, and the shore of Hudson's Bay furnish its watering places. It is following the footsteps of Stanley up the Nile, and begins to startle the sleep of the Orient. Its headlights may illumine the darkness of the land of the midnight sun. You can express your trunk from Chicago to Budapest, or to Hong Kong or Constantinople, and you can buy tickets from London through Chicago, to Melbourne and Yeddo, with absolute security to person and belongings. Jules Verne's "Around the World in Eighty Days" is abridged without the accidents and delays which hindered his hero.

Mr. Chairman, this brings me to another purpose in addressing you. It is fitting tonight that railways should follow finance. That is the sequence of things. First bonds and stocks taken, then railways built, then should follow mutual efforts to achieve the highest planes of associated managements, for they are the right and left arms of progress, national protection and national and international financial standing. The credit of the union is first told by its bonds, next by its railway mortgages, and they should be mutually guarded. Nevertheless unreason soon forgets and assails its benefactors, and railways are no exception to this record of unappreciation.

You gentlemen of commerce and finance are encountering the evils of unwise monetary legislation, and you are apprehensive of more. You are demanding the repeal of unsound fiscal enactments, and the institution of wiser financial laws. We of transportation are undergoing even more crudities, and in some instances the unfriendliness of national legislation. Over thirty bills arose in the last congress relating to railway rates, rights and administration, all but one of which purposed in some degree to diminish their net results by adding greater responsibilities or creating greater expenditures. Countless municipalities and counties, and many of the states, presented various measures of like purport until the aggregate constituted volumes of proposed and enacted limitations greater than ever impended in any year in any nation concerning its carriers.

The railway charges of the United States average, for swifter service and larger carrying liabilities, not two-thirds of those of European countries, and England instituted advanced rates last year. We pay greatly more for railway labor than any other country. Taxation is increasing. The growth of cities traversed, changing grade crossings, increasing terminal and track facilities, speed, etc., all lead to greater and unavoidable current outlays, and many of the leading lines are increasing their funded obligations to meet these conditions. There is but one source from which we can derive the revenues therefor, the public, but that public through legislators who misapprehend both the situation and justice, and who bend more to illogical ballots and ambitions than do they stand erect for the right, are increasing the people's privileges, and railways' expenditures and responsibilities and, simultaneously, our rewards therefor.

This is all done under the guise of regulating commerce, but it is not commerce which is regulated. It is but the small transportation element of it. The actual commerce in grain, pork, iron and fabrics remains unrestricted by federal law. Witness your defeat of the Hatch bill, intended to curtail the liberty of trade and the constitutional power of contract.

The real exponent of both transportation and commerce in one person, is the peddler with his pack, and he is and should remain, as should his successors, unrestricted in any state or by the nation, whether he crosses a state line or not, when engaged in just purposes and charges.

It was the true intent of the Annapolis constitutional convention, and the language then adopted into the national charter, to prevent interference by any state traversed with the peddler's or seller's due liberties of purchase, journey and sale, and not to intercept railroad carriers alone, for there were no railways in any nation for a generation thereafter. Nor was it intended in this respect that the nation should practice the discriminations the states were forbidden to exercise, of restricting one carrier and freeing the other. Water routes are free today. Railway routes are not.

To provide for current obligations, pay labor and taxation, care for sinking funds, improve safe and expeditious service, comply with law and hope for due rewards upon our share capital, we first sought and still seek to stop all depletions of revenue by rebates from our just and legal tariffs which also result in preferences to persons. Rebates are never paid unsolicited. They are oftenest resisted under importunities and sometimes threats of diversion of the traffic of large aggregations of individual capital. Our purpose being identical with that of the interstate act, we asked the national Congress to legalize our contracts for the maintenance of uniform reasonable charges, upon the ground set forth by Judge Dundy of Oregon, in these words:

"It is not apparent how the division of the earnings of the two roads can concern the public so long as the rate of transportation is reasonable."

We proposed to give the governmental commission the right to revoke the grant of such authority when proven to have been used to exact unreasonable rates or regulations. The single ballot of the senior senator from Illinois defeated favorable report thereon. We hope this year to reverse his veto, and to incite your interest in these views to that end, as you command our coöperation in your equally reasonable proposals in the following respects.

Organized stock exchanges are needful to values and fiscal regulation; produce, real estate and insurance exchanges and boards of trade to mercantile prices and probity; clearing houses to banks; maritime exchange to marine enterprises; and chambers of commerce to unite them all.

They are deemed essential to the observance of sound business principles, and the preservation of corporate capital unimpaired, in order that insurers and depositors may not lose theirs. Railway shareholders are entitled to like protection. Some authority must exist in every great and public calling that is central, respected, definite, disciplinary and forceful; not merely permissive existences, but needful and legalized public safeguards.

If the government purchased our railways, as many advocate, the controlling and unifying power would dwell in a governmental railway direction.

All the receipts from governmental railway traffic would then surely go into one general purse or pool, as do all its receipts now. Competition would cease, as in the postal service; discriminations would

stop, as in the collection of customs tariffs; and the gross incomes received would be apportioned to this or that railway or district as they are now from mail and other revenues, in order to show incomes, expenses, profits, efficiency and honesty of public administration, the need for new laws, etc.

This would mean legalized railway association, which is what we ask the nation to authorize for us, because the problem cannot be easier to individuals possessing less than governmental powers.

Moreover, if it be right to maintain customs and internal tax rates alike to all, why not railway rates? The government's net ordinary receipts for 1891 were 392 millions of dollars. Our railways received 1126 millions, or about three times as much. They therefore touch more people, and should be stable, non-preferential and reasonable.

The New York Clearing House association is a voluntary federation of nearly seventy banks, organized in 1853, representing a vast capital. Its annual clearances of about 34,000 millions of dollars are thirty times as much as the annual gross receipts of the railways of the union. Its constitution says its object is

"the affecting at one place of the daily exchanges between the several associated banks, and the payment at the same place of the balances resulting."

This banking association has proven its great value as a barrier or aid to financial crises. It assisted the government in the exigencies of its war finance, and has introduced and sustains uniform and conservative banking methods. The fact that within a few days its members have decided to stand together and assist each other is hailed as an omen of monetary security.

The New York Stock Exchange determines what securities may be properly admitted and quoted, and if its charges are abated by its members, they are disciplined. Its regulations are enforced by the courts. Its quotations for railway bonds and shares vary daily, while agreements by railway corporations to secure stable and non-discriminating *carrying* charges are declared *without the pale of law*.

The Produce Exchange of New York was chartered as "The New York Commercial Association," to enforce good commercial methods and honorable dealing between its members. Its quotations also vary day by day, but when railways seek to give the transportation element in the same articles traded upon its floor, stable, reasonable and public legal values by a similar organization, the people are told it is a railway conspiracy to be opposed in the public interest.

The fact that either of these last named bodies are used by speculators to wrong others does not detract from their legality or their aggregate usefulness and value.

A proper and legalized railway association for similar purposes is even more essential than these and other trade exchanges, because the railways in some manner relate to the business of them all. A railway officer who has agreed to maintain reasonable rates, yet pays concealed drawbacks and thereby creates unlawful preferences, is too frequently regarded as a public benefactor and his act credited to competition, when he would be expelled from either of the exchanges named for similar action touching any other agreement.

If the great boards of trade had long ago evicted railway agents who violated their obligations to observe uniform and reasonable rates,

as they would eject other members who dishonored other mercantile agreements involving less sums and injuries, they would have greatly aided railway morality and the law. I furthermore regard it as their prime duty to seek and procure equal rates for all their members. The largest shippers are, however, usually influential in such bodies, and reward with their large traffics those railways which first or most often depart from reasonable joint tariffs, made as the law requires.

The National Congress, the states, and trade organizations should not encourage and perpetuate this corporate contention and bad faith, under the misnomer of "competition," for carrying strife is in the interests of stronger against weaker persons and railways.

The services of the railways in creating national wealth, in developing mines, forests and fields, and then advancing their products into new markets; in equalizing localities and constantly cheapening the charges for better service, surely entitle them to a nation's kindness rather than its kicks.

Whatever they may have done which was wrong, they have done more good, and in other lands, where lesser complications make the problem easier, all and more than we ask is legalized.

I cannot close this hurried review better than to quote from Thomas M. Cooley, the first chairman of the Interstate commission, who said in the case of the Omaha Board of Trade against various railways:

"If a rate, when made by one company as a single rate, would in law be objectionable, it would be equally so when made by several as a joint rate. The policy of the law and the convenience of business favor the making of joint rates, and the more completely the whole railroad system of the country can be treated as a unit, as if it were all under one management, the greater will be the benefit of its service to the public, and the less the liability to unfair exactions."

Mr. Chairman, this Commercial Congress should unite in another purpose; to secure clean railway finance as well as upright banking accountability. There should be no juggling of railway accounts any more than in the public banking statements.

Both should be alike clear, direct, concise and true. There is a good old word to which all action should aim—"Rectitude." We should act within its comprehensive meaning, and sustain, and, if needful, compel its observance. There should be no more speculative perversion of railway incomes by their officers or the corporations they represent, than of bank revenues. With mutual coöperation to these two conditions, our citadels of commerce and finance will become as strong as the limitations of human judgment will permit, and public confidence will be justified.

Mr. Chairman,—I have presented these questions, although hurriedly, because this is a congress, and all congresses talk on all sides. Friendly contention is growth, but hostility is dwarfing. Discussion is knowledge extended. It reaches from the germ and the atom to the locomotive and the mine in the mountain, from the lens to the star, and from the widow's mite to the national debt. Aggregate knowledge is the "World's Fair."

The "White City" is but an aggregation of thought reasoned into substances, beauties, utilities and forces. It was the wise conception of President Bonney that reflective discussion would, after observation, stimulate yet more forceful, beautiful and useful purposes and forms, and thus enhance the facilities and values of life. This is not only true of thought related to visible things, but of that higher quality of the

mind which limns more beautiful and useful pictures in the chambers of contemplation than those which hang in the galleries of art.

These congresses are therefore meant to develop better models in intellectual and upper life as well as improved shapes of iron, wood and marble. In that respect, its place among world's fairs is unique and adds to the superiority which marks its every other department.

Mr. President and Mr. Chairman, I thank you again for our craft. On its behalf I wish for each of your departmental congresses an abundant issue of success, and that it may become greater hereafter when your discussions in these few swift days are reflected upon at the desk and the fireside.

OPENING ADDRESS AT THE RAILWAY COMMERCE CONGRESS.

BY THE CHAIRMAN, MR. GEORGE R. BLANCHARD.

It was the view of those who projected this series of meetings, that there should be an exhibit of mind as well as matter, in halls of discussion as well as display. In the order in which these congresses were appointed, we have arrived at the period assigned for the discussion of railway topics.

The list of the subjects and the gentlemen assigned to their consideration are known to you. You will find thoughtful, eminent and practical names among them, and I am sure their contributions will not only have an immediate, but a lasting and growing value. The intellectual food offered you will furnish viands for repeated mental digestions hereafter. It is the purpose of the Railway Congress to publish the papers submitted, in order that others may sit at renewals of the feast.

I cannot pass this opportunity to say, that there is a paucity of standard railway literature from the commercial side of the great question—its relations to the public, to legislatures and the courts, which the papers here promised will do much to supply. Too many of the surmises, assertions and false reasonings and conclusions of the unfair, the uneducated, the hostile, and of political clamorists have passed unchallenged. This has continued so long that many who approached with fair minds the great questions and problems which underlie these general public averments, have concluded that we lack good grounds of rejoinder, defense and proof. In this respect, we are at fault. We should have had not only a defensive but an aggressive railway literature—opposing facts to fancies—soundness to sound, and reasoning to railing.

I know there are many who dissent from the value of such publications, because of the smallness of the leaven compared with the loaf. They oppose this educational view with gloomy forebodings of the influence of designing men upon the electors, with the aggressions and demands of the unprincipled, and with suggestions that the cause can best be argued, fought and announced by cases carried to the courts

whose findings will reach larger audiences with greater weight and conclusiveness. Conceding much to this view, every convert or proselyte to the platform of justice, alike for corporation and individual, becomes an aid whose influence may sometime be potent in important or perhaps critical cases.

I presume the experience of others who have written on these subjects conforms to mine, that they have requests from debating societies and professors and classes on political economy, in institutes and universities, for railway publications setting forth their contentions, arguments and replies in such issues. These men go to business or jurisprudence or to state legislatures or the national congress where their voices will become heard, and possibly potential. They may be in the councils of cities, sit on juries, or be professors, governors, presidents, editors, or ambassadors. Many of them will continue sincere students of the transportation problem, and, in so far as their younger reflections or convictions are attracted to our views, it will become harder hereafter to impregnate them with recantations or hostilities—many who are now antagonistic can be re-convinced by our efforts. Knowledge is a seed which bears fruit in unexpected places—by roadsides as well as in broad fields—in alleys as well as colleges, and we should both plant and scatter it.

It is our duty to our calling to find the time and make the opportunities to this end. It is a matter of regret to those who have been charged with the preparations for this meeting, and the procurement of skilled men who would talk to these purposes, that many who have contributed papers are unable to be present in person, and that many others invited were unable to assist us by papers or their attendance.

The world-wide occasion which calls us together is also the reason why many cannot be here. Their duties at this time are more than usually exacting by reason of this great Exposition and the attention they are giving to the safe transit of persons to it. For those who are here, our thanks. For those who are absent, our regrets.

Gentlemen,—Whatever your number, you represent 392,000 miles of the world's railways,—with their capital, commerce, public relations, incomes, outgoes, advancements, security and growths; it is a vast field to talk in. We wish more of our trans-oceanic friends of the calling were present. Those who are here and to come during the week have already discovered the national latchstring and have found that it opens great doors to American friendliness, cordiality, consideration, and commercial brotherhood. We wish them to think so the more from the knowledge of our calling,—and in your name we welcome them—193,000 of the 392,000 miles, or a majority of the world's railway now in operation, connect continuously in North America, and it devolves on us to be correspondingly large in our consideration of these questions and in the warmth of our national greetings.

Ours is the largest human calling, judged by its influence on the world, as witness my quotation last night from Bacon and Macaulay. To paraphrase Emerson, We blow the whistle that's heard 'round the world, and all peoples stop to heed and welcome it. Its resonance is the diplomacy of peace. The locomotive bell is the true Liberty bell, proclaiming commercial freedom. Its boilers are the reservoirs of the

forces of civilization. Its wheels are the wheels of progress, and its headlight is the illumination of dark countries.

Let us do as befits such benefits, powers and opportunities. This World's Exposition is proof of them all. Essentially without our craft its palaces would never have arisen and its halls would not have been filled with its helps to every material and artistic betterment for life, and the fraternities of nations would have been longer delayed. We especially should look upon it proudly and often as contributors in so large a sense to its magnitude and magnificence. I will not detain you with any review of our growth from 1828 to 193,000 miles now. You know the story of the infant and the giant he has become as well as do I.

And now, gentlemen, I will pass to the pleasanter task for you and me, of presenting the menu and introducing the chefs.

I.

RAILWAY LAW AND LEGISLATION.

CONSTITUTIONAL GUARANTIES OF RAILWAY PROPERTIES, FRANCHISES AND RATES AGAINST LEGISLATIVE SPOILIATION.

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At the close of the year 1892 there were in the United States 170,601.18 miles of completed railway, having a capital stock liability of over four and three-quarter billions, and a funded debt liability of over five billions of dollars. In the earlier periods of railway construction a very few of the states lent moderate financial aid to the companies, and at a later period counties and municipalities have also, to a limited extent, aided in the construction of these necessarily expensive improvements. In general, the aid, whether by states or municipalities, has not been in the form of bounties or gratuities to the companies, but by way of subscriptions to their stock or bonds. The general government has made grants of lands to certain states or certain companies for this purpose; but except in the case of the Central Pacific railroad and Union Pacific railroad company, and certain of its connecting branches, forming part of the Union Pacific system, it has made no grant of money for this purpose; and in the case of the Central and Union Pacific companies the government has secured itself by a lien upon the railways for its bond subsidy. The public investment in railways is so insignificant, as compared with their cost, as scarcely to deserve mention. The important fact to be remembered is, that the immense sums of money invested in railways in the United States, over ten billions of dollars, has been furnished almost wholly by private capital, by individuals and not by the public. Another important fact to be remembered is, that the cost of these works is so great that the money necessary for their construction could not have been obtained otherwise than through the agency of corporate organizations.

It is also to be remembered, that as the legislative policy of this country finally shaped itself, these corporations were and are in no sense monopolies, since almost every state of the union has adopted what may aptly be called the policy of "free trade" incorporations; that is to say, nearly every state has adopted general incorporating acts,

whereby any number of men may, at their pleasure, organize themselves into a railway company to build a railway on any route they please without substantial restriction.

Within the last twenty years, that is to say, after the railway system of the United States has been developed to the full needs of the country, experience has shown an increasing hostility to railways, and they have been subjected to public attack, obliquely by Congress, and directly in quite a number of the states, chiefly through the exercise of the power of taxation, and the exercise of what goes under the name of the police power of the state. The attempt, in the former case, takes the form of inequality in the tax laws, intended to make the railways pay more than their fair share of the public burdens. In the latter case the attempt is by an unjust regulation and restriction of rates of compensation to deprive the companies of their property, or of some portion of it, or of its full and equal possession and enjoyment. About twenty states of the Union, mostly within the last ten years, have enacted laws by which the legislature, in a few instances, has itself fixed the maximum rates of transportation, but which, in general, create railway commissions, with authority to prescribe rates. In some of these enactments it has been declared that rates thus prescribed shall be conclusive evidence that they are fair and reasonable, while in other cases it is declared that such rates are only *prima facie* evidence of their reasonableness; thus by implication leaving, in case of controversy, the question of what is a reasonable rate to the determination of the judicial tribunals.

The ten billions par value of the shares and bonds of our American railway companies are held by multiplied thousands of owners in all parts of the globe. These are in reality a great public fund in which a large part of the savings of the people is invested; and every holder of an American railway share or bond is directly interested in the subject of this paper, viz.: WHAT EFFECTIVE GUARANTY, IF ANY, HAS SUCH HOLDER AGAINST LEGISLATIVE INVASION OR DESTRUCTION OF HIS PROPERTY? It is my purpose to show that the fourteenth amendment of the constitution of the United States protects railway properties, franchises and rates from legislative spoliation by the states, and that the fifth amendment to that constitution, in connection with the limited powers of the general government under the federal constitution, gives like protection against the legislative power of Congress.

The statesmen who founded and shaped our republican institutions were neither visionaries nor socialists. They were really English whigs, of the Chatham and Burke school. The contest with England did not originate in any sentimental or speculative notions of the rights of man, or in any hostility to monarchy or the form of the English government. The colonies made but a single issue, namely, that they ought not to be taxed by a parliament in which they were not represented. This contest began and was settled years before the French Revolution, and had nothing in common with it. The colonies claimed nothing but English liberties, and wanted nothing beyond Magna Charta. It was a contest for English liberties. So they regarded it, and so it was regarded by their friends and supporters in England. Thus, in Burke's address to the king occurs the passage on the subject, which Lord Grenville said "was the finest that Burke ever wrote—perhaps the finest in the English language—beginning, 'What, gracious sovereign, is the empire of

America to us, or the empire of the world, if we lose our own liberties?' " (Life of Sir James Mackintosh, American Ed., Little, Brown & Co., 1853, Vol. II., p. 475). As in the English revolution James II. was declared to have "abdicated," so curiously enough in the indictment of George III., which the Declaration of Independence really is, they asserted that he "has abdicated his government here by declaring us out of his protection and waging war against us." Singular abdication that of a king, who was at the time fighting his accusers with his combined armies and navies. There was indeed no choice, but there was, also, no general inclination to found the new governments upon any other basis than the sovereignty of the people. The perils as well as the advantages of this form of government, unless the direct exercise of popular power should be restrained, were anxiously felt. This was the great problem to be solved. And in this consists the whole rationale of written constitutions, and of the checks and limitations, of which the constitutions essentially consist. They did not believe men to be angels, but very human. Accordingly, the constitutions which they builded are, as Professor Bryce forcibly puts it, "the work of men who believed in original sin, and were resolved to leave open to transgressors no door which they could possibly shut," with the result that the constitutions they established, "if regarded simply in their legal provisions, were the least democratic of democracies." (Bryce, "The American Commonwealth," Vol. I., pp. 299, 300).

It is among the eternal lessons of history, which they well knew, that the mass of the people were subject to the influence of supposed temporary interests and of "violent and casual forces," which might be in conflict with their own vital and permanent wellbeing. The devices which our constitutions provide to prevent precipitate action of the popular will are single and simple in principle, but elaborate, though not complex, in arrangement. They may thus be grouped and shortly stated: (a) Three coördinate departments, and the separation and distribution of all of the powers of the government into these departments, each checking the other; (b) a system of representation with a double chamber, each a check on the other; (c) the insertion of guaranties of primordial and fundamental rights, Magna Charta enlarged and perfected, into the constitution; (d) distribution of powers between the states and the Federal Union; and (e) an independent judiciary, made the guardian of the constitution, with the crowning power and duty to declare unconstitutional statutes to be void, all to the end that there may be secured "a government of laws and not of men."

This system of checks and balances, which the framers of our government contrived, and which, in its totality, constitutes our constitutions, has but the single ultimate purpose of curbing the unfettered exercise of the popular will, and it demonstrates how thoroughly they realized the dangerous and destructive force of that will, if it were not put under effective restraints. Unrestrained it would be (to borrow an illustration from Schiller) like the path of the lightning, or of the cannon ball —

"Direct it flies and rapid;
Shattering that it *may* reach, and shattering what it reaches."

Restrained, however, blessings attend its course, and it answers the description that follows :

"But, my son, the road human beings travel,
That, on which BLESSING comes and goes, doth follow
The river's course, the valley's playful windings;
Curves round the corn-field and the hill of vines,
Honoring the holy bounds of property!
And thus, secure, though late, leads to its end."

THE PICCOLOMINI, Coleridge's translation, Act I., Scene IV.

The absolute unique feature of the political and legal institutions of the American republic, is its written constitutions, which are organic limitations, whereby the people, by an act of unprecedented wisdom, have, "in order to establish justice, to promote the general welfare, and secure the blessings of liberty to themselves and their posterity," *protected themselves against themselves*. What renders this the more extraordinary is that these constitutions are self-imposed restraints. The spectacle is that of the acknowledged possessors of all political power voluntarily circumscribing and limiting the plenary and unrestrained use of it. History affords many examples where the holders of political power have been forced to surrender or curtail it for the general good; but the example of the people, constituting the American political communities, in limiting, by their own free will, the exercise of their own power, stood alone when this sublime sacrifice was made, and it has not been followed in any country in Europe, nor successfully put in operation elsewhere than in the United States. I said that in this way the people had protected themselves against themselves; and this they have done, by making the constitution in reality what, in its sixth article, it expressly declares itself to be, namely, "the supreme *law* of the land, binding the judges in every state, anything in the constitution or laws of any state to the contrary notwithstanding." This latter purpose they accomplished by providing that the constitution should be interpreted and enforced by the judiciary, as one of the departments of the government established by the constitution, and that the judgment of the courts thereon should be, if necessary, carried into execution by the executive, by the whole power of the state (*United States vs. Lee*, 106 U. S. Rep. 196).

The great fundamental rights guaranteed by the constitutions are life, liberty, contracts and property. The two former are everywhere respected and protected by the legislatures and the courts. I recall only one notable exception to this statement, and that is found in the decision of the Supreme Court of Pennsylvania, affirmed by the Supreme Court of the United States, that the legislature could constitutionally prevent a man from pursuing what was, in fact, a lawful business, namely, the manufacture and sale of oleomargarine. But we cannot close our eyes to the fact that, to some extent, the inviolability of contracts, and especially of private property, is menaced, both by open and covert attacks. Property is attacked openly by the advocates of the various heresies that go under the general name of socialism or communism, who seek to array the body of the community against individual right to exclusive property, in *some form* to deprive the owner of it or of its full possession and enjoyment.

Property, or the full measure of its rightful enjoyment, is also covertly invaded, not by the socialist, but at the instance of a supposed popular demand; in which case the attack is directed against particular owners or particular forms of ownership, and generally takes the insidious, more specious, and dangerous shape of an attempt to deprive

the owners—usually corporate owners—of their property, by unjust or discriminating legislation, in the exercise of the power of taxation, or of eminent domain, or of that elastic power known as the police power—such legislation resulting, and intended to result, in “clipping” the property, or “regulating” the owner out of its full enjoyment and use. Among the people of our race the era of the despotism of the monarch or of an oligarchy has passed away. If, however, we are not struck with judicial blindness, we cannot fail to see that what is now to be feared and guarded against, is the despotism of the many—of the majority. Speaking of Great Britain, Sir Frederick Pollock recently said, that “at no time has it been fitter for us to be put in mind *that the effective power of law is not only the work, but the test of a civilized commonwealth*, and that law, as a great English writer has said, is, in its nature, contrary to such forces and operations as are ‘violent and casual.’” (Oxford Lectures, and Other Discourses; Lecture IV., p. 100). So, before the kingly office was separated from the judicial office, David prayed: “Give the King thy judgments, O God, that they may come down like rain into a fleece of wool, even as the drops that water the earth;” that is to say, gently, like the fertilizing rain, and not violently, like the destructive deluge. (Psalm lxxii., version of the English Prayer Book).

All of the original states, in their first constitutions and charters, carefully provided for the security of private property, as well as of life and liberty. This they did either by adopting, in terms, the famous thirtieth article of Magna Charta, securing the people from arbitrary imprisonment and arbitrary spoliation, or by claiming for themselves, compendiously, all of the liberties and rights set out in the Great Charter. (All of the constitutions of the forty-four states contain like provisions. Mr. Bryce, in his chapter on the “Development of State Constitutions [“American Commonwealth,” Vol. I., Chap. xxxviii.], did not fail to perceive that, “they show a wholesome anxiety to protect and safeguard private property in every way. * * The only exceptions to this rule are to be found in the case of anything approaching a monopoly, and in the case of wealthy corporations.”)

I make this statement as to the action of the original states, after a careful examination of their charters and constitutions. On the admission into the union of subsequent states, the constitution of each contained similar provisions.

When the federal constitution was formed there was inserted in it the provision, also original and unique, “*that no state shall pass any law impairing the obligation of contracts.*” (Art. I, Sec. 10.) Encroachments from the general government were feared, and this fear led to the speedy adoption of the first amendments to the constitution. Justice Miller, in the Slaughter House cases, says: “The adoption of the first eleven amendments to the constitution, so soon after the original instrument was accepted, shows a prevailing sense of danger at that time from the *federal power*.” These amendments were promised and insisted upon. “I hope,” said Jefferson, “that a Declaration of Rights will be drawn up to protect the people against the federal government, as they are *already protected in most cases against the state government.*”

The fifth amendment *inter alia*, ordained that, “*No person shall*

be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use without just compensation."

This was not new language, or language of uncertain meaning. It was taken purposely from Magna Charta. It was language, not only memorable in its origin, but it had stood for more than five centuries as the classic expression, and as the recognized bulwark of "the ancient and inherited rights of Englishmen," to be secure in their personal liberty and in their possessions. (Burke, Vol. III., "Reflections on the Revolution in France," pp. 272, 273, American Ed., Little, Brown & Co.) It was, moreover, language which shone resplendent with the light of universal justice; and for these reasons it was selected to be put into the fifth amendment of the federal constitution, as it had already been put into the charters and constitutions of the several states. Thus we see a general, fixed, and settled purpose, in both the state and federal constitutions, to protect and secure personal liberty, contracts and private property.

With these guarantees — life, liberty, the inviolability of contracts, and the sacredness of private property — the republic set out on its untried course. One hundred years and more have vindicated the necessity, and demonstrated the wisdom of these organic limitations. Their wisdom is no longer a matter of speculation and conjecture but of history.

The result of the provision ordaining contracts to be inviolable, has been, says Mr. Justice Miller (Michigan, Ann Arbor Address, 1887; Miller on the Constitution of the United States, page 393): "To make void innumerable acts of state legislatures, intended, in times of disastrous financial depression and suffering, to protect from the hardships of a rigid and prompt enforcement of the law in regard to their contracts, and to prevent the states from repealing or abrogating or avoiding, by legislation, contracts fairly entered into with other parties." Hundreds of acts of state legislation have been declared void, under this clause, by the Supreme Court, and repudiation, whether intended or unintentional, with its consequent dishonor, prevented. Who is not glad that the states, or the people of the states, have not had the power to destroy or impair contracts?

So, likewise, the provisions in the state and national constitutions, protecting private property, have, up to this time, been effective. If disregarded by the legislature, they have been enforced by the courts — the constitution being the *supreme* law. These have been, indeed, the great triumphs of our popular system of government, for these were supposed to be its vulnerable spots. Disbelievers in republican institutions had predicted early shipwreck on these rocks, and when it came not, they simply postponed the period of fulfillment. See, for example, Allison, in his famous chapter XC. of "History of Europe," published in 1839-1842.

These prophecies have happily hitherto proved false,—so historically and signally false, that as strong an unbeliever in popular government as Sir Henry Maine, speaking of the American Union and its unexampled career, was constrained, in 1885, to confess and declare that,—

"All this beneficent prosperity reposes on the sacredness of contract and the stability of private property; the first the implement, and the last the reward, of success in the universal competition."

(Essay on Popular Government, p. 51, American Ed.)

For this frank and candid utterance of a truth which forced itself upon his convictions, I forgive all his doubts as to the success of popular government, and cancel the remembrance of his dismal forebodings.

Then came, as a result of the Civil War of 1861-1865, the fourteenth amendment of the federal constitution, which, among other things, ordained,—

SECTION 1. "Nor shall any state deprive any person of life, liberty or property, without due process of law; nor deny to any person within its jurisdiction, the equal protection of the laws."

It was of set purpose that its prohibitions were directed to any and every form and mode of state action—whether in the shape of constitutions, statutes or judicial judgments—that deprived any person, white or black, natural or corporate, of life, liberty or property, or of the equal protection of the laws. Its value consists in the great fundamental principles of right and justice which it embodies and makes part of the organic law of the nation. No person is wise enough to foresee the beneficence of the future operation of these principles, if the courts are true and firm in maintaining this amendment in its full scope and purpose. I believe it will hereafter, more fully than at present, be regarded as the American complement of the Great Charter, and be to us,—as the Great Charter was and is to England,—the source of perennial blessings.

The fourteenth amendment, while it does not deprive the states of their autonomy or their power, subject to the federal constitution, to regulate their domestic concerns, does nevertheless, in the vital matters specified in that amendment, operate as an express limitation upon the powers of the states. It puts life, liberty, and property upon precisely the same footing of security. It binds them each and all indissolubly together. It places each and all of these primordial rights under the ægis and protection of the national government. By this provision they are each and all adopted as national rights. Under the fifth amendment they are each protected from invasion by Congress or the federal government. By the fourteenth amendment they are each protected from invasion by state legislatures, or by the people of the states in any form in which they may attempt to exercise political power. If these rights are not safe and secure, it is because, and only because, of the essential infirmity of constitutional limitations of the most peremptory character. This we cannot admit. The fourteenth amendment, in the most impressive and solemn form, places life, liberty, contracts and property, and also equality before the law, among the fundamental and indestructible rights of all the people of the United States.

It sets the seal of national condemnation upon Proudon's famous maxim that "property is theft" (*la propriété c'est le vol*): "Property holders are thieves." This pernicious doctrine has hitherto found no general acceptance among our people or their legislators; and under the constitution as it now stands this doctrine can obtain no foothold as to any species of property,—if the courts are faithful to their high trust as the guardians and defenders of the constitution. Bear in mind ever that this, like all other provisions of the constitution, was

put into the constitution "to be enforced by the judiciary as one of the departments of the government established by the constitution."

(United States vs. Lee, 106 U. S. Rep. 196).

The value, however, of these constitutional guarantees, wholly depends upon whether they are fairly interpreted, and justly and with even hand, fully and fearlessly enforced by the courts.

If there is any problem which can be said to be yet unsettled, it is whether the bench of this country, state and federal, is able to bear the great burden of supporting under all circumstances the fundamental law against popular, or supposed popular, demands for enactments in conflict with it.

Commenting on *Munn vs. Illinois* and the *Legal Tender* cases, Professor Dicey says: "In no country has greater skill been expended in constituting an august and impressive national tribunal than in the United States. Moreover, the guardianship of the constitution is confided not only to the Supreme Court, but to every judge throughout the land. Still it is manifest that even the Supreme Court can hardly support the duties imposed upon it." "Lectures on the Law of the Constitution," (Lecture IV. p. 163). It is the loftiest function and the most sacred duty of the judiciary,—unique in the history of the world,—to support, maintain and give full effect to the constitution against every act of the legislature or the executive in violation of it. This is the great jewel of our liberties. We must not, "like the base Judæan, throw a pearl away richer than all his tribe." This is the only breakwater against the haste and the passions of the people,—against the tumultuous ocean of democracy. It must at all costs be maintained.

Having thus discussed this important subject upon the general principles which it seems to me to belong to it, and by which it must be governed, let me now refer to the opinions of the Supreme Court of the United States relating thereto, and endeavor to ascertain how far up to this time these views have the authoritative sanction of that tribunal. Taking all of these decisions together, it is my judgment that they do not warrant the criticism of Professor Dicey above mentioned.

The scope and limitations of the legislative power of the states over railway tariff have been considered by the Supreme Court of the United States in six or seven cases—commencing in 1876 with *Munn vs. Illinois*, and the *Granger* cases (91 U.S. 113-181) and ending with the *Michigan Passenger Rate* case in 1892 (143 U.S. 339).^{*} I have made a careful study of these cases. I understand that these decisions affirm and establish the following principles.

As to railways created by a state, or doing business in a state under state authority, the several states, as respects interstate commerce, are without any authority whatever to touch or regulate the same in any degree. As to domestic commerce—that is, such as "begins and ends within a state, disconnected from a continuous transportation through

^{*}The following are the more important cases directly relating to or bearing upon the subject decided by the Supreme Court of the United States:

The *Granger* cases (91 U.S., 113).

The *California Spring Valley Water Works* case (110 U.S., 347).

Mississippi Railroad Commission cases (116 U.S., 307).

Wabash Railway case (118 U.S., 557).

The *Arkansas* case (*Dow vs. Beidelman*, 125 U.S., 680).

Minnesota case (134 U.S., 418).

New York Elevator case (143 U.S., 517).

Michigan Passenger Rate case (143 U.S., 339).

or into other states" (118 U.S., p. 564) — the state may establish maximum rates of charges, either immediately by legislative act, or mediately through a commission, but this power is not unlimited, but, like all other legislative powers, is subject to the prohibitions of the constitution of the United States, and particularly to those of the fourteenth amendment. The constitutional limitation is that the rates thus fixed, although they are *prima facie* valid, because presumptively reasonable, are nevertheless void if the carrier affected thereby can establish in the proper judicial proceedings that they are unreasonable. The question of reasonableness or unreasonableness is in all cases "ultimately a judicial question requiring due process of law for its determination" — that is, judicial investigation in a suit in the courts of justice "under the forms and with the machinery provided by the wisdom of successive ages for the investigation judicially of the truth of a matter in controversy." It is not competent, therefore, for the state to enact that the rates fixed by a commission, whether fixed *ex parte* or after notice and investigation, are conclusive or final, for such an act would be unconstitutional, because it denies to the company due process of law, and by "depriving it of the lawful use of its property it, in substance and effect, deprives it of the property itself, and of the equal protection of the laws" (134 U.S. 458), contrary to the express provisions of the fourteenth amendment and the fundamental principles of American liberty.

The leading case in the Supreme Court of the United States is the well known Minnesota case (Chicago, &c. Ry. Co. vs. Minnesota, 134 U.S. 418, 1889). In that case it is declared in the opinion that, "The question of the reasonableness of a rate or charge for transportation by a railroad company, involving, as it does, the element of reasonableness, both as regards the company and as regards the public, is eminently a question for judicial investigation, requiring due process of law for its determination. If the company is deprived of the power of charging reasonable rates for the use of its property, and such deprivation takes place in the absence of an investigation by judicial machinery, it is deprived of the lawful use of its property, and thus, in substance and effect, of the property itself, without due process of law and in violation of the constitution of the United States; and in so far as it is thus deprived, while other persons are permitted to receive reasonable profits upon their invested capital the company is deprived of the equal protection of the laws." (P. 548).

Notwithstanding the decisions in the New York Elevator case (Budd vs. New York, 143 U. S. 517, 1891), subsequently made, it is my deliberate judgment that the great, fundamental, constitutional principles laid down in the Minnesota case stand to this day without impeachment, question, or qualification in anything before or since decided by the Supreme Court of the United States.

PRINCIPLES ESTABLISHED BY THE MINNESOTA CASE SUMMARIZED.

These principles are, that legislative regulation of fares and rates, whatever its scope, is limited by the line of reasonableness; that if unreasonable, they deprive the company of its property without due process of law, and that the question whether they are unreasonable, is a judicial question which must be decided in a suit upon pleadings and issues, and upon proofs, by the judicial tribunals.

These are, let me repeat, fundamental principles of constitutional liberty and right. They deserve the noble panegyric which Lord Chatham pronounced upon Magna Charta, the Petition, of Rights and Bill of Rights, when he called them "the Bible of the English Constitution." They are, indeed, vital to the security of the billions of capital invested by the invitation and authority of the states in these useful and necessary public enterprises. But they are inexpressibly more vital, not only to the honor, but the permanent well-being of the states themselves. Justice is the only foundation for individual or public prosperity. It is not possible that any state, in the long run, can derive any advantage; it is certain, in the long run, that any state will suffer incalculable injury from the doctrine that a majority of its legislature, in an hour of passion or frenzy or gust of popular prejudice or opinion, has unlimited power over any species of property or over the rights of property owners. Such notions are alien to our traditional ideas of constitutional and natural rights. What more just than the doctrine of the Supreme Court in the Minnesota case; just to the state representing the public on the one hand, and just to the owners of the railway properties on the other. That doctrine is that the legislature may effectively secure just and reasonable rates for the public. What more can the public ask? That doctrine also is that the legislature cannot fix or authorize rates which are unreasonable or unjust to the railway proprietor, provided that such proprietor can, on a trial in the courts of the land, establish such rates to be unreasonable and unjust. Nothing less than this can be conceded to the owners of railway properties unless such owners are to be selected from other property owners for outlawry; that is, placed beyond the pale of constitutional protection, and their property doomed to confiscation.

I make no apology for the length of this address. The transcendent importance of the questions involved justifies even a fuller discussion than the necessary limits of this occasion allow.

They vitally concern every railway company in the United States, and every shareholder and bondholder of American railways wherever he may live.

It is to me a consolatory and cheering reflection that I have been able to vindicate the wisdom and efficiency of the constitutional guarantees of private property, and to show that railway companies are not subject to be despoiled either by Congress or state legislatures, since the power of Congress must be exercised subject to the limitations of the federal constitution and of the fifth amendment thereto, and since the power of the states to regulate and fix railway tariffs must be exercised subject to the fourteenth amendment; that if the rates thus fixed are unreasonable or unjust they are void, and that the question whether they are unreasonable or unjust is a judicial question to be determined by the courts, and ultimately by the Supreme Court of the United States under, and in accordance with, the general laws of the land, and the traditional and immutable principles of justice which are embodied in our organic laws.

**THE PROPER PROTECTION OF THE PUBLIC RIGHTS AND
INTERESTS INVOLVED IN RAILWAY
COMMERCE.**

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The public function which every common carrier by rail assumes, carries with it the obligation to refrain from extortion and unjust discrimination. It requires no technical knowledge or discriminating consideration of varying commercial conditions or methods of carriers, to express by judicial utterance in particular cases, or to provide generally in statute law, that public carriage shall be conducted on the basis of fairness and equality. The real difficulty is encountered in the attempt to so effectually apply such general principles to the movement of property and persons that infringements thereof will be as exceptional as violations of specific laws regulating other subjects of national concern. Stated more definitely, the railway problem of today is this: How can the business of transportation be so conducted and regulated that reasonable and relatively equal charges and facilities will, as a rule, be assured to every shipper and passenger at the time the service is rendered, and at the same time the just rights of the carriers be preserved? The conduct of railway commerce under regulations which preserve this equilibrium of rights is obviously the end which will best promote the public interest. While some railway experts and economic writers urge that it is impossible of attainment, there are others who, observing and appreciating the wonderful development of railway operation, and believing that its possibilities have not yet been even apprehended, hold to the contrary view. Progressive management, improved transportation methods, and the operation of state and federal laws, have together already brought the railway service to a degree of order and reliability which has resulted in immeasurable benefit to the public at large, but much yet remains to be accomplished in the direction of transportation reform.

Twenty-five years ago practically all the railway mileage in the United States, then about 35,000 miles, was constructed east of the Mississippi river. The establishment of an iron highway through any section was still regarded as an unmixed public blessing, and he who refused to give it a right of way through his land or the locality which declined to assume large indebtedness for its construction and equipment, was condemned as lacking in public spirit. The only railway problem of that day was how to secure more railways. Later, when phenomenal railroad building had practically annihilated distance, had established competitive relations between localities which before were

safely independent of each other, and thereby reduced the profits of traders and producers to such small margins that the favor of the roads meant wealth if granted and ruin if withheld, then the railway problem took on something of its present character, and then began that agitation of public opinion throughout the land which continued for nearly a decade, grew in intensity with the abnormal construction and commercial development of that period, and culminated in the congressional enactment of 1887. The record of railway building, railway operation, land improvement, manufacturing enterprise, mining industry and trade development in the United States from about the close of the rebellion to the year 1887, presents a history of progress unparalleled in the annals of nations; and the stupendous expenditure of energy and capital in the separate development, during twenty years, of such related forces as transportation, agriculture, manufacture, mining and trade, created the conditions which resulted in the federal statute of that year.

What has been accomplished in the direction of protecting public interests under the operation of that act is recent history. The commercial chaos and irreparable losses which would result if it should be erased from the statute books cannot be estimated. The discriminations, the extortions, the almost total dependence of trade upon transportation favor, which existed prior to 1887, and caused the people to demand federal regulation, would, in case of such repeal, be vastly increased according to the greater volume of business, still closer trade margins, additional number of competing localities and augmented railway mileage.

We now have nearly 175,000 miles of railroad, almost one-half of the total rail mileage of the world; the number of persons directly connected with railway transportation is from the latest reports about 800,000, and it is estimated that the number of those who directly or indirectly derive their support from the operation of railways is nearly, if not fully 4,000,000; the capitalized value of our railroad property is not far from ten billions of dollars, or about one-sixth of the total value of all real and personal property of the United States, and the total gross earnings of railways during the year ending with June, 1892, for carrying 562,719,926 passengers and 763,960,042 tons of freight, amounted in round figures to about one and one quarter billions of dollars.

Such a statement of industrial results tells an amazing story of daring enterprise, mammoth investment and prodigious achievement; of a vast population engaged in producing and trading throughout an immense area; and of a fabulous commerce which paid for movement in a single year an amount exceeding the aggregate banking capital of the nation. Such a statement also demonstrates the interdependence of transportation, production, finance and trade, and that laws or business methods which oppress either of these great commercial divisions or portions of the public engaged therein have evil effect upon all.

While the carriage of persons and property in vehicles wheeled at great speed over metal bands by mechanical power was still the exceptional means of communication and enjoyed by comparatively few portions of the country, railway favor and heedless railway management had not then so affected the other branches of industry as to

become a subject of general public concern. But as roads were pushed through undeveloped regions; as places and localities grew into producing and distributing centers; as competing lines began to contend for the carrying trade of communities; as cost of carriage decreased with the improvement of roads, equipment and management, and commodities from every section became able to compete for sale in every market, so, in like degree, each community and each shipper became more interested not only in the charges they must pay for railroad transportation, but in the charges and services rendered to every competing community and shipper wherever situate. The enormous tonnage, travel and earnings of railways show how extensive this growth has been. Commercial conditions today are such that a difference in transportation charges often no greater and sometimes less than one cent per hundred pounds, or a corresponding difference in service rendered, may seriously affect the business not only of persons but of entire communities. This indicates how intense the public interests in railway service and railway rates has become. With this growth of railway power and, to a large extent, absolute commercial dependence upon the efficiency and integrity of railway management, the time has surely come when proper protection of the whole public calls for renewed efforts on the part of law-makers and railway operators to advance the work of transportation reform on the lines of railway progress and in the light of experience gained in regulation under the Railway act of 1887.

We should not, however, expect to arrive at purely ideal results. It is idle to look forward to an adjustment of rates which as applied to localities and differently circumstanced persons will bear no heavier upon one than upon another. Such mathematical equality is manifestly unattainable through human endeavor. Not even common control of all railways through consolidated ownership or government purchase could accomplish such a task of equalization for thousands of places and millions of persons. Certainly the much vaunted theory of uniform charges for all traffic would, under the greatly diversified conditions which now prevail throughout the country, have the opposite effect, and inflict greater discriminations than arise under the existing general practice of fixing charges which attract traffic to the various lines. A uniform rate per mile on all traffic for any distance would arbitrarily limit commerce to sections and greatly restrict production. A scale of mileage charges increasing with multiples of distance, as one rate for 20 miles and another for 40 miles, and so on, and applied to all traffic alike, which might be just and fair to one portion of the country would be cruel and oppressive to others. And different scales of distance rates for different sections, which might prescribe relatively just charges for the movement of some commodities, would present ridiculous and unbearable inequalities in their application to traffic in general. The future may bring about such changes in commercial conditions as will render it practicable to fix transportation charges according to a plan even more simple than those just mentioned, but it is quite apparent that neither could be adopted with safety or advantage now. Our present duty is to evolve from the existing situation such transportation methods and rules as will make approximately

reasonable and substantially equal treatment of the public the ordinary result of railway operation.

It is significant that during the period of commercial development and railroad extension, which have brought communities into such close business relations and made slight differences in transportation rates on competitive commodities a matter of serious import, there has been, under the operation of the interstate commerce law, a steady decrease of complaints based on charges unreasonable in themselves. The concession is quite general among shippers that, with some exceptions, rates as a whole are low enough, and they often express surprise that the service can be rendered at prices charged.

The proper relation of rates is now the vital question, and one important phase of the problem of today is how, in the interest both of carriers and shippers, to so adjust rates that neither communities nor certain kinds of traffic will be unduly burdened or unduly favored. The private corporations which operate our railroads do so with a view to resulting net revenue, and they are entitled, as a matter of private right, to fair remuneration; but in apportioning charges intended to produce such revenue among the communities they serve and the kinds of traffic they carry, they touch the public interest with vital effect at every point, and, while keeping within the rule of just and equal rates to individuals, their prime duty as public carriers is to apply such rates to localities, and to the diversified traffic they carry, in relatively just proportions. While they must take cognizance of the needs of commerce, and regulate their charges accordingly, it is frequently difficult, on account of the force of trade competition and competitive relations between themselves, to maintain rates in proper relation and, at the same time, secure necessary revenue; for rates to market centers must generally be low enough to induce the continued shipment of commodities seeking sale in such markets in competition with goods produced in other sections and carried by other lines.

Railroads are public agencies operated with private capital and employed by the people in the carrying on and development of the country's commerce; but their steady employment depends upon the resulting advantage to those who use them. The farmer will not continue hauling wagon loads of grain to the market town if taking it there and selling it does not benefit him. The railroad car which the farmer loads with grain is only another kind of wagon, and the distant railroad center to which the car may be destined is only another market town on a larger scale where the farmer's grain must compete for sale with grain from many sections of the country, and at prices fixed according to the world's supply and the world's demand. Trade is no longer limited to circumscribed areas; distance hardly ever bars the making of commercial bargains between widely separated parties, and almost every article of commerce finds the competing product of another region in any place of sale. The consequence is that products of the farm, the forest, the mill and the mine are continually demanding from carriers rates adjusted to values in particular markets. It is this competition of product with like product, of market with market, that has induced carriers, in their eagerness to increase the volume of their traffic, to continually reduce their rates to market points.

Such competition is the competition of commerce itself. The strife

between competing industries, which the public interest demands, should be left free from fettering laws and uncontrolled by restraining combinations. But *unrestricted* competition between the instrumentalities which commerce must employ has long been regarded as injurious to the public welfare. This is especially true of transportation, and to the extent of protecting the public interest, legislatures and courts have not hesitated to restrain the freedom of carriers in the conduct of their business.

Another phase of railroad development, which in some quarters has created alarm, is consolidation. Many claim that the interests of commerce are opposed to general railway consolidation. Statistics show that while the gross earnings of railways are increased by large amounts each year, on many roads the tendency of net revenue is to decrease; and many consolidations of lines have been forced by the inability of roads to operate at all without positive and irretrievable loss. The following extract from the article on railway statistics in the Interstate Commerce Commission's sixth annual report demonstrates the extent of consolidation up to June 30, 1891:

"There were, on June 30, 1891, 1,785 railway corporations, of which 889 were independent companies, and 747 were subsidiary companies, the remainder being private lines. The report shows that 16 roads have been abandoned during the year, and that 92 companies, representing a total mileage of 10,116.25 miles, have disappeared by purchase, merger, or consolidation. On June 30, 1891, there were 42 companies, each of which controlled mileage in excess of 1,000 miles, and 80 companies, each of whose gross income exceeded \$3,000,000. These 80 companies control 69.48 per cent. of the amount paid by the public for railway service, and perform 83.76 per cent. of the total passenger service, and 82.66 per cent. of the total freight service of the country."

To my mind railway transportation is being conducted under conditions and methods which warrant the following general propositions:

1. That through inability or eagerness for immediate traffic, carriers do not resist the depressing effect upon rates which results from the competition of product with product, and market with market.
2. That changes of rates on individual lines, in obedience to the represented requirements of particular industries, causes continual interference with the relation of rates, and result in manifold undue preferences and prejudices.
3. That unreasonably low rates to competing points, where the larger portion of traffic is handled, impels railway officials to give secret rebates in order to divert business to their lines, and thereby increase total revenue, though they incur risk of fine and imprisonment by so doing.
4. That the natural tendency towards railway consolidation is greatly stimulated by a rate situation which deprives many railways of sufficient net revenue.
5. That when large proportions of railway tonnage are carried at rates unreasonably low, the regulation, provided by existing law, becomes difficult of enforcement; carriers seek to justify their action by technical and specious defenses, and indulge in dilatory tactics in litigation, and ingenious devices to evade the orders of the regulating authority.

If these propositions are sound, it is obvious that shippers and carriers have common interest in devising a remedy which will result in greater revenue from the traffic of competing points. The corrective measure most advocated is the repeal or modification of that section of

the act to regulate commerce, which forbids carriers to pool their freights or divide their earnings; the object being to permit the roads, which carry between competitive points, to jointly establish rates between such points, from which neither of the roads acting individually may vary, and to agree among themselves how much of the gross tonnage each is entitled to carry, adjusting the balances due from and to the respective roads, through one or more managers in charge of the pool.

There is, apparently, some justice in the claim of railway managers, "that so long as our rates and facilities are fair and reasonable, the general public, outside of our shareholders, have no interest in arrangements we may find it expedient to make among ourselves." But, on the other hand, opponents of the scheme say that the public has just as much interest in preventing the railroads from forming powerful and overshadowing combinations as it has in restraining persons engaged in industrial pursuits from banding together for the purpose of gain. They say, with reference to the carriers, you transport our commodities, and we are willing that you should, individually, fix and charge a fair price for the service, but we are not willing to permit you to combine, and by united action, so adjust rates, facilities and methods of service over naturally competing lines, so, in fact, conduct the transportation business of the country, as to force us, your employers, into positions of subserviency which railway commissions and courts may find it difficult to relieve. Specious pretexts will not induce us to return to methods which have been fairly tried and thoroughly condemned. But the advocates of pooling reply that they would consent to have the privilege hedged round with all the safeguards which legislators can devise, even to the extent of requiring the pooling contracts to be submitted to the national commission for approval, and be at any time subject to cancellation by them, upon their finding any party to the contract guilty of unjust discrimination or of disobedience to their orders. They say the interstate commerce law is a good and just law, and that they want to strengthen it, and the commission created to administer its provisions.

It is claimed that there is no reason why such conditional pooling could not, with safety to the public interests, be given the sanction of law; but the people and legislators seem to distrust any proposition which has combination for its object, and the result of past efforts of railway officers and others indicate that it will be hard to convince the majority, at present, if ever, that what they consider the abhorrent features of industrial trusts will not be essentially prominent in combinations of the transportation agencies, which all commercial industries must employ.

This being the case, the question arises, whether an unobjectionable plan cannot be devised which will efficiently aid in securing stable and just rates, and the advantages which will flow therefrom.

It would seem that the maintenance of justly remunerative rates might be substantially aided by making it the duty of the commission to regulate rates when they are unreasonably low, as well as when they are excessive, relatively, or in themselves. As the statute now stands, it is not made the duty of the commission, nor has it the power to prescribe a minimum rate, however plainly it may appear that such an order would be for the interests of all parties concerned and those of

the general public. My attention has been called to this by cases that have come before the interstate commerce commission. It has heretofore been assumed that there would be no necessity for the public authority to have this power or duty cast upon it, as the interests of the railways would be a sufficient guarantee against unreasonably low charges, but such an assumption has been found erroneous as to competitive point rates. Upon this point there is no longer room for doubt. The utmost that can be done, as the statute now stands, is to give the carrier, in a case of relative rates to different localities, the alternative of lowering one rate or increasing the other. But this does not meet the difficulty. One rate may be to a local station, the other to a so-called competitive point, which another carrier also serves, and in such a case the order might as well simply require a reduction of the rate to the local station, for without the concurrence of the competing carrier, a change of the competitive point rate would often be a vain and unprofitable proceeding. In such a case the true remedy would often be, both for the interest of the parties and the public at large, to limit the competitive point rate.

In its second annual report to Congress, the interstate commerce commission said :

"If it is important to the public that a railroad once constructed should be maintained, the ability to make charges that will render its maintenance possible is also of public importance. When, therefore, the rate sheets are such that reasonable returns are not probable, a public injury is threatened, and the injury is accomplished when the natural result of bankruptcy is realized. It is of little moment that in the meantime the public reap an apparent benefit from the very low rates; the apparent benefit is almost always illusory, for the unremunerative rate sheets are seldom evenly balanced; they favor particular towns or particular interests, or they go spasmodically up and down, and thus unsettle prices; they are commonly made quite as much to injure competitors as to benefit the party making them, and it will generally be found that reasonable rates, adjusted equitably over the whole field of service, would have been as much better to the community as to the carrier itself. This, however, may not at the time be apparent; the public perceives what seems to be a benefit from low rates, and the attendant evils, which are not so obvious, may possibly not be perceived at all."

The truth of this statement has been more generally recognized and better understood, from year to year, since it was first given to Congress.

Traffic for very many competing localities is being carried at rates which do not yield a due proportion of the necessary net revenue which carriers must have. The transportation rule that any traffic which will pay something over the cost of movement is desirable because it adds something to net revenue has been too often applied by managers without regard to results; so that on many roads a great portion of their tonnage is being carried at rates which, compared with the charges levied for service rendered in carrying the other portion, are extremely low. It sometimes occurs that the disparity between charges which are lower to competitive than to intermediate points is so great that the inference is irresistible that the lower rate must be unremunerative, or else the larger rate to the intermediate point gives an unwarranted return for the service rendered. I call to mind an instance of railroad competition where the competitive rate of 23 cents for 567 miles yielded a rate per ton per mile of only a little over eight mills, and the intermediate rate of 39 cents for 230 miles produced a rate per ton per mile of over $3\frac{1}{3}$ cents. Such gross disproportion cannot be justified on any ground of cost or necessity. Neither is it extraordinary to find an article, like dressed beef, for instance, being carried at rates which are

nominal when considered in connection with the charges imposed on other traffic of similar bulk, value and ease of carriage to the same points. There are other ways of making up for lack of sufficient revenue from competitive business, such, for example, as raising tariffs applying between local stations, or insisting upon the right to charge more between points on one road than for longer distance over joint lines of which the road is part. Necessity, assumed or real, has been a prolific mother of ingenious invention, both in making tariff rates and evading tariff rates when made. There are even instances where carriers with a *monopoly* of the traffic from producing localities on their lines have made rates to market towns unnecessarily low on some of the commodities carried. The competition of like products from producing localities on other lines has not made such low charges necessary, and they exist through inadvertence, mismanagement, or through favor or the force of custom.

A Union Pacific director not long ago said: "The Union Pacific road is doing a large amount of its business now as competitive business at a loss, and they have not the nerve to stand up and refuse it, because they are fearful that some other road will get it." He also said there was a large demand upon their road for all their cars to do a paying business. To assume that this practice was limited to that road would be absurd. It is rare that a rate war does not result in rates below a paying point. "In general it may be said that railroad managers possess the power to destroy the interest not only of their rivals, but of their own stockholders, if they can recklessly make rates that lead to bankruptcy."

The tendency of unjustly low rates to one point is in the direction of unreasonably high rates to others, and the same is true when one species of traffic is favored as against others, and those who are charged the high rates have a right to demand that the burdens of transportation be more equally distributed. While carriers could, if they would, materially increase competitive charges, and in like degree scale down rates to local centers of trade, by acting harmoniously to that end, and by adhering to such new rate adjustments, yet experience has shown that to expect this is to expect the improbable. A traffic manager attending railway meetings naturally contends for an adjustment favoring the shipment of products over his line, and railway compacts entered into for the purpose of maintaining rates have seldom been upheld by the members when even temporary advantage could be gained by breaking them.

The stability of just rates can never be assured without the sustaining aid of the law. While such legislation would be in the interest of carriers, its broader purpose and effect would be the protection of the interests and rights of the general public, and it would, for that reason, render the administration of the law easier and more successful. It would answer the charge, now often made, and not without effect upon willing minds, that the law, as it stands, naturally and unavoidably operates to depress rates unduly.

When a substantial part of the traffic is carried at rates which do not yield a fair proportion of necessary net revenue, the consequence is, first, that other traffic must be charged higher rates on that account; or, second, interest and payment on floating indebtedness and fixed charges must be partially and oftentimes wholly withheld. In the latter event, large

loss to railway investors, an expensive receivership, a possible subsequent reorganization, or a consolidation with other lines, is only a question of time, and during the insolvent period the ability of the road to properly serve the public is seriously impaired. In the former case, persons and committees entitled to fair and impartial treatment as patrons of the road are materially prejudiced, their natural advantage of location is destroyed, and the rights of the public are invaded. If carriers themselves are practically unable to agree upon and maintain properly related rates, or if they are able to accomplish and adhere to such rate adjustments, and fail to do so, and one of these propositions is unmistakably true, then, in the interests both of railway patrons and railway properties, the tribunal charged with the duty of railway regulation should have statutory authority to prescribe minimum as well as maximum charges. To regulate is to adjust, to prescribe a rule. But regulation which, with the single exception above alluded to, whatever justice or the public interest may require, can work but one way—downward—is only half regulation.

Of course I do not assert that to lay upon the commission the duty of prescribing minimum rates under proper limitations will in itself work out the complete reform which is now so imperative, but I do claim that it would promote the rate equalization and stability which are essential to accomplish the reform.

Whether or not Congress can constitutionally give a commission power to prescribe what rates a carrier shall charge is not, I think, a question involved in this discussion. An order directing carriers not to charge more than a prescribed maximum is not the fixing of a rate. It is confining the exercise of their rate-making privilege to a specified and reasonable limit; and the same is true of an order prohibiting a rate below a prescribed minimum. The true aim of regulation in a country so vast and with a railway mileage so extensive as ours should be not merely to remove, here and there, such abuses as may become manifest, but to prevent the existence of those abuses as far as possible. Now, if the law does not accomplish this, its provisions should be suitably amended. I look with favor upon the proposition that the additional authority to prescribe a minimum rate after investigation is one of the essentials to the maintenance and stability of rates and the prevention of unjust discriminations and preferences. This power should be exercised only upon hearing and investigation, and perhaps should be limited to cases arising upon petition or complaint.

The design of this paper is to suggest a remedy only in general terms; its proper limits do not admit of a presentation of the statutory details of the application of that remedy. If the suggestion here presented is practical and sound, it will be an easy matter to formulate statutory provisions to carry it out, and in a way to make it apply not only to complaints of shippers based on unjust discriminations between localities, but also to the petitions of carriers for relief against insufficient rates to specified competitive points, or those which apply throughout wide sections of the country covered by traffic associations, such, for instance, as the territory covered by the trunk lines.

Perhaps the exercise of this power over rates covering wide extent of territory should only be allowed upon application of carriers. In prescribing a minimum rate the right of longer and otherwise less favor-

ably located lines to proper differentials should also be preserved. The effect of such action would be to give rates, which carriers can properly afford to make, such qualified legal sanction as would render them permanent until, upon sufficient showing to the commission, it is demonstrated that they should be altered. Such rates could not be thrown out of adjustment by the independent action of a single road. Nor would this course involve any appreciable disturbance of business, for conservative action would be imperative with so many conflicting interests involved. While the work of the commission might be somewhat increased at first, such additional labor would, I believe, be of short duration, and the results would promote a sound basis of rate making, stable rates, to which commercial interests would grow, and upon which they could safely rely, and fair revenue to carriers derived from traffic in just proportions. Another ensuing benefit would be, that complaints to the commission by shippers of violations of the law would be reduced to a minimum. Complaints would largely be made by carriers against carriers, and such a result is greatly to be desired. Those railway managers who regard the fourth section as obstructive to the necessities of traffic would cease to view that provision with such disfavor, because under the operation of the regulation here proposed, the reasons alleged for high intermediate rates would be, to a large extent, removed. Willful and secret unjust discriminations would be comparatively rare, for carriers being cut off from meeting a secretly cut rate lawfully, that is, by open reduction of published rates, would have much greater reason than now to see that evidence of its competitor's violations of tariff rates is produced. The knowledge of certain detection is the most efficient preventive of crime.

The limitation of competition in rates leaves a wide field for another most useful kind of competition, viz., competition in facilities. This includes the quality of the physical structure and equipment, efficiency and promptness of service, terminal conveniences, etc. Indeed, to restrict competition in rates would necessarily stimulate competition in service, and any careful reader of the present law must observe the intention of its framers to leave carriers free to provide the best facilities and render the highest quality of service at the published tariff rate. While the law prohibits carriers from making excessive or unjust charges, and provides for conviction of violators of its provisions, the giving of greater facilities to one place than to another is not made obnoxious except it be shown to constitute undue preference. For example, nobody will claim that the magnificent depots and the immense warehouses, and the through, speedy, and special train service enjoyed by many large competing localities occasion any injustice to intermediate places on the same line. As regards freight, this competition is pointedly exemplified in the transportation of fruit, dairy products, live stock and dressed meats, but it would clearly be for the public interest to have such competition promoted and extended in the widest sense to all railway freights. It is, with railroads as with merchants, a sound and profitable business principle to give the most they can for a standard price. In fact such a principle has especial application to railway management, for, as a rule, shippers and passengers look quite as much to the speedy, safe and advantageous

way the carriage is performed as they do to the price which the carriers charge.

The necessity of making the provisions of the statute plain and precise, so as to accomplish as far as practicable what is commonly termed the solution of the railroad problem, is largely increased by the fact that the interstate commerce commission is not a tribunal exercising judicial functions or having judicial powers in the sense of a court. Its duties are administrative. That is, the commission applies the principles or regulations provided by the legislative body to the practical work of transportation. In doing this, it is obliged to give construction to the statute, but such construction, though judicial in its nature, is not final.

Singular as it may seem, this fact has been seized upon by opponents of legislative regulation, and been used with vigor to discredit the law and its operation. This was to be expected. It should not be overlooked that operators and managers of railroads would naturally be restive under interference or restriction upon their methods; nor should it be a surprise that the thousands who have been the recipients of special favor, many of whom have reaped fortunes, others a less amount all the way down to a free ride, should berate a law that made wilfull favoritism criminal and dishonorable to the receiver as well as to the giver. Opinion from such sources as to the value or operation of the regulating enactment should be taken at least with grains of allowance, especially when against it is the counter opinion of the great bulk of average shippers, in point of individual tonnage, who have been the victims and not the heroes of the secret rebate system, and also the opinion of a very large number of railway officials of all grades.

It has always been conceded by the friends as well as the enemies of the law that it was and still is defective and deficient in many respects, and that without amendment it is beyond the power of adequate enforcement to the extent of a complete cure of the evils which it was intended to remedy. Some say that nothing short of the adoption of the pooling system will make the law of any value, others that a court must be substituted for the commission. I am not antagonizing either suggestion in this paper; but I am thoroughly satisfied that immense advantages and benefits have resulted to the country from the law, notwithstanding its defects and the obstacles it has had to encounter; and further, that without either of the radical changes just alluded to, still greater benefits will result from further amendments along the line which the act originally contemplated and provided. Indeed, I believe that transportation by rail will fail to be fairly remunerative and satisfactory as a whole in our country until railroads adopt and act upon the basic principles of the act to regulate commerce, which no one has yet ventured to pronounce unwise or unsound; but in my opinion that will not be done without the aid and compulsory force of law.

If the amendment suggested in this paper should be adopted, I would have no doubt of its great value to commercial interests, and also to the railroads, if they should utilize it and give it support. Even without that, such amendment would greatly aid the commission, as above shown, in the decision of complaints on the ground of unjust

discrimination between terminal and intermediate points. That class of complaints, which is now so numerous, would afford opportunity to apply the general relief herein discussed. I can see no good reason why railroads should not avail themselves of this remedy, and it seems to me they would show bad faith if they did not. The pooling bill favored by railroads before Congress at the last session would have conferred much greater power upon the commission than is here contemplated.

Any discussion of the railroad problem that loses sight of the fact that in the end it is the consumer who pays the freight charges of what he consumes, whether it is food to eat, clothes to wear, houses to live in, or material essential to him for use in his business, must be faulty in the highest degree. The same is true of any discussion that fails to recognize another fact, viz.: that the railroad is a public agency, performing a duty which the courts have defined to be a function of government; that it does not stand as a piece of property like a dwelling house or a building devoted solely to private business. I cannot stop to dwell on this idea, but allude to it only to say that notwithstanding this peculiar feature of railroad property, yet the American people like fair play, and want, as to this kind of property, only what is right in regard to it. They do not want rates that are below what is reasonable and just.

The legislation that they have sought of late years, either state or national, did not arise out of a socialistic sentiment or an idea of disregarding constitutional provisions designed to protect property as well as the person. These provisions are sacred yet in their minds. They were only seeking for protection of their own constitutional rights from abuses of railroad administration, abuses that tended to impair railroad investment as well as to destroy that equal, fair and just treatment by railroads which they owe to the public. Therefore, if in this new field of wrong and effort for remedy, the people overreached a little in some instances, it hardly warrants the charge of attempted violation of property rights under the constitution of our country. When that charge is in substance made by the power that created the abuses that fully called for remedy, it is a little like the pot calling the kettle black.

As I believe the people do not mean to be unfair in their general demands as to railroad rates, so I believe they will favor any regulation that would promote reasonable and not dangerous protection of railroads, as well as secure justice and fair dealing to themselves.

When railroads cease to do wrongs in respect of rates, they will have little to fear from the people.

The question heretofore incidentally alluded to may arise: What right has Congress to authorize a limitation upon a railroad company in its reduction of charges for services? The proper limits of this address forbid any extended discussion of the question. I have endeavored to show that experience and observation has demonstrated that the interests of commerce demand it, viewed from every standpoint; that it would promote stability of rates that are simply reasonable and just, of rates only fairly remunerative; that without some legislative provision against unreasonably low rates, the railroads cannot or will not guard against them; that such rates tend strongly to promote unjust discrim-

inations; that they imperil railroad investments; that this vitally affects industries throughout the country; that as productive enterprises and mercantile pursuits must always involve consideration of the cost of transportation; the closer this can be brought within fixed limits, which do not violate the rule of reasonableness in either direction, the more certain and reliable may be the calculations in such enterprises and pursuits; that this is of infinitely greater importance than the opportunity for spasmodic rates that are below fair remuneration; that the imposition of this duty upon the interstate commerce commission would operate as a substantial aid in the enforcement of the provisions against unjust discrimination and unlawful preference, and would largely remove the inducement to such practices on the part of carriers; that transportation—the business of carriers—is so closely related, and so essential to all other industries, that it is practically a part of them, and whatever weakens or in any way injuriously affects railroads, carries a depressing effect into other industries and touches all social prosperity; that while competition in rates is effective against extortion, it is not so against discrimination; that every public interest related to commerce would be benefited by the remedy suggested and no private interest would wrongfully suffer. To a greater or less extent it would, as before shown, destroy the opportunity of shippers to obtain undue advantages prohibited by the statute, and it would interfere with the occasional carrier—so disposed—from entering the realm of ruinous competition; but beyond this, it does not occur to me how any interest could suffer. Assuming that Congress has constitutional power to regulate, which is denied by some lawyers, but by no court, and that the foregoing summary is well founded, it is difficult to see what doubt there can be of the right of Congress to confer the power or impose the duty here suggested. The exercise of the power of duty would be open to revision in the courts the same as now, when the commission fixes a maximum rate. It is the general doctrine of the cases, that whether the particular regulation is really necessary or appropriate is a question almost entirely for the exclusive judgment of Congress, under its broad constitutional power to regulate commerce among the states. It would, therefore, seem that where a regulation is actually found to be in the public interest, without any element of confiscation or destruction of private property or rights, it is far within the power conferred upon Congress.

In the suggestions herein made, I speak only for myself, not officially for the interstate commerce commission. The duties of the commission have been so exacting, perplexing and important, that its practice has been to disfavor any amendment of the statute which would increase its powers and responsibilities, unless absolutely essential. It is often said that the habit of tribunals is to reach out for additional power and authority. The reverse is true of this commission. Not because its members are different from others in natural desire for power; but because the burdens imposed upon them under the law are quite sufficient to satisfy the most grasping ambition.

There are many things either wholly omitted or incompletely provided for in the act to regulate commerce in addition to the defect discussed in this paper, which, when perfected through statutory provision, will be helpful regulations in the interests of commerce and

transportation; such as better, perhaps uniform, classification, improved form of tariff schedules, more reliable and economical methods of through routing, use of shippers' cars, regulation of transportation agencies not now subject to the statute, power for the enforcement of more complete statistics of railway operation, definite rules governing railroad construction and railway capitalization, and other subjects in which the public has substantial interest. These matters, however, will naturally be questions for solution in the light of experience in regulation, and the progress in railway operation, which railway managers will continue to develop.

To fully treat the comprehensive subject assigned to me, would require discussion too extended for this occasion. It has not been my object to solve the railway problem,—that will never be wholly accomplished, because the conditions, the elements of the problem, will be constantly changing,—but to make a suggestion that will efficiently aid in the removal of any obstructions to the application of sound principles to transportation, and thereby advance the best interests of commerce.

PROTECTION OF PRIVATE RIGHTS INVOLVED IN RAILWAY COMMERCE.

EDWARD P. RIPLEY, VICE-PRESIDENT CHICAGO, MILWAUKEE & ST. PAUL RAILWAY CO.

When, with honeyed words of flattery, the secretary of the Railway branch of the World's Columbian Auxiliary beguiled me into a promise to write something for this occasion, and propounded as the alluringly alliterative title, "The Proper Protection of Private Rights Involved in Railway Commerce," my first impulse was to ask—"What Private Rights? Am I expected to discuss the private rights of the individual who deals with the railway, or those of the individual who owns the railway?" On looking over the list of topics, however, I perceived that another, and far more able gentleman, had been assigned to the task of bringing forward the "public rights involved in railway commerce"—upon which I concluded that my task was to portray the woes of the stockholder.

Many difficulties surround this task, chief among which is the fact that the subject has been so thoroughly discussed that I can hardly contribute anything that has not been better said before. It is related of Sydney Smith that he once criticised a new book as follows: "There are things in it which are new, and things which are good—but the good things are not new and the new things are not good." I deeply feel that in this paper there is likely to be nothing new, and that if there are any good things they will be old.

I stand here then for that long suffering, patient and much abused individual, the stockholder—to *his* grievances, I invite your attention and for his wrongs I plead for redress. He seldom obtrudes himself—

he has no voice in the legislation, which, to a greater or less extent, injures his property, and too often does not even have much to say about its management. He accepts with meek gratitude such dividends as are meted out to him, and hopes for better things—he is supported indeed mainly by hope. He is seldom heard—even his own employes and the managers of his property do not get his woes before the public, which generally looks upon him as an alien and as a subject to be plucked.

None of the ready sympathy which the public extends to the individual is extended to the individuals of a corporation, however unfortunate that corporation may be. It is not easy for me to see how private individuals lose their rights when banded together as an incorporated body. If an enterprise is conducted by an individual no one questions his right to manage it at his discretion, but if it requires larger capital than a single individual can command, and various persons associate themselves together for the same end, the popular feeling seems to be that in some way they commit a crime against the body politic—at all events they are denied in many cases the rights which the individual possesses.

No one questions the right of a carpenter, a bricklayer or any other artisan to demand and obtain all that he can for his services; no one in these days even questions the right of any working man to combine with other working men to the end that the community shall be *forced* into complying with his demands, providing, of course, no violence is used. I maintain that the railroads have as much right to so combine as has any other interest—even better right—because they cannot, like the artisan, take their tools and move to another locality. This renders them to a great extent helpless, and at the mercy of the surrounding community, and on this account entitled to greater consideration than any other industry; yet this interest—the most complex and most essential of all—is singled out as the sole business in which the state assumes to interfere.

And so when we say there are 175,000 miles of railroad in the United States, most of which make no returns on capital stock, and many do not pay interest on their debt, and others fail even to pay expenses, the public which would cheerfully proffer aid to an individual bankrupt, and would scorn at least to make him poorer by legislative enactment, shrugs its shoulders at our tale of woe, and talks of "watered stocks;" of the fortunes of Vanderbilt and Gould (as if these things had any bearing on the case) and the necessity of "regulating" the railroads,—which regulation, singularly enough, always takes the form of a reduction of corporate revenues.

It is probable that much of the restrictive legislation enacted as to railways comes from a belief that railways have been profitable to investors; it is unquestionably true that such an idea prevails among the masses to a very considerable extent, and while the figures show conclusively the absurdity of such an idea, one can easily see how it obtains credence because some of the largest private fortunes in the country have belonged to men more or less identified with railroads. But Vanderbilt laid the foundation of his fortune in other pursuits, and Gould made his, not by the operation of railroads, but by the manipu-

lation of securities in Wall street. Others have made money in the construction and subsequent sale of railroad properties.

The business of transportation by rail employs more money and more men than any other industry in the country, and it would be exceeding strange if we could not here and there point to examples of conspicuous success; but in any impartial view of the situation, the failures must also be taken into account, and if the railroads as a whole are not now yielding a fair return upon their value, the selection of individual successes proves nothing.

Nothing is more common in discussing the regulation of railroads than to hear of "watered stock" and "dividends on fictitious values," and it is surprisingly difficult to convince the public that this well-worn war cry—this fetich of the demagogue—has no place in the discussion and is wholly foreign to the question of relations between the railroad and that portion of the public which uses them. If we are right in the belief that the railroad is entitled to earn a fair return on its value it is of no importance to the public whether that railroad is capitalized at a million dollars, with its securities selling at par, or at ten millions, with securities selling at ten per cent. of par. The speculative or investing portion of the public gauges the value of the property upon its earning power with tolerable accuracy. I believe there are very few railroads (I know of none) in this country which at any time during the past ten years have earned more than six per cent. upon their value—meaning by value what it would cost to reproduce them. In the case of the companies now paying dividends I believe it to be true that most of them are capitalized for much less than their reproducing value, and that few or none of them earn anything like a fair return on what it would cost to duplicate them.

The public has asserted certain rights in the private property of individuals invested in railroads—it has had those rights confirmed by the highest legal tribunal of our country, and it has proceeded to exercise them: it dictates practically what return, if any, the individual investor shall receive on his investment,—to a considerable extent it deprives him of the use of his property and limits his profits. This is not a matter of contract either, as much the larger part of our railroad mileage had been constructed before it occurred to the public that it possessed these rights and powers, and on the faith of state charters which reserved no such rights, and in many cases distinctly conferred the sole rate-making power on the corporation. Thus those, who in the middle of this century put their savings into railroads and thus rapidly developed the resources of the nation at their own risk and expense, now find themselves in many—perhaps in most cases, deprived of the return which their enterprise warranted.

For myself, I have never been able to see what the public has done for the railways that entitles it to so large a voice in their affairs as it now claims. When I make this statement I am usually reminded of the right of eminent domain possessed by railways. Now this phrase has a pompous ring about it which is calculated to deceive, and while I have no doubt that all my hearers know what it means, I want to give you its meaning from a railroad standpoint. It means in short, that you can force a man to sell you his land whether he wants to or not, but it also means that he can and will make you pay from two to four prices

for it. This is all there is to that high and mighty prerogative of eminent domain—a prerogative granted by the public because the public need railroads and they could not be built without the right to condemn property; beyond this necessary regulation the public does nothing for the stockholder, yet the laws are framed upon the apparent postulate that the state has conferred upon the railroad some inestimable boon which entitles it in return to demand whatever it pleases, and to enforce its demands. But I do not care now to criticise the position of the courts on these questions; it has been decided that a railroad is a “quasi” public corporation,—which seems to me a very happy way of intimating that the public has the right to interfere in all the operations of a railway except the payment of its debts.

Assuming then the right of the public to “regulate” railway affairs, the question before us is how that regulation shall be accomplished with due regard to the rights of security holders—that is, if they have any, which is a question upon which the courts have been less explicit.

Are the owners of railway property entitled to any return on their investment, and if so, what return? If they are to be denied the privilege accorded to all other business enterprises of making all they can, and if the public is to regulate their affairs and limit their earnings, it is certainly of the first importance that the owners should know upon what basis our rulers propose to compute the returns which they propose to allow for the use of the property.

It is very customary to hear gentlemen announce that the basis should be that of “cost and a fair profit,” but, as the cost is in the nature of things unascertainable until after the event, this is manifestly impracticable. Others again claim that each road should be allowed to earn interest on its cost. But some railroads have cost more than they are worth—that is, more than they could be duplicated for, while others could not be replaced for two or three times what they cost. How will the public provide for earnings on the former sufficient to pay interest on the excess of cost if the owners have been unable to do it themselves; and, as to the latter, shall the owners of railroads be alone deprived of the advance in property values which their own enterprise has created? If the railroad buys right of way at five dollars per acre and in ten years makes it worth fifty, why is it not entitled to the increase in the value of its property as is the farmer who bought at the same time and the value of whose land has been created by the railroad?

The dictum of an eminent legal authority is that the railroad is entitled to earn interest on its bonds and *some* dividend on its stock—the amount of dividend resting with the legislature. The source of this opinion entitles it to respect, but it suggests the idea that hereafter it would be wise for the projectors of railroads to capitalize wholly in bonds. Another proposition is that the railroad is entitled to earn interest on its value *i. e.*, the sum for which it can be duplicated,—and if the state is to take a hand in railroad affairs, it seems to me that this proposition is the nearest approach to being just. Should the nation and the various states remove the present jumble of absurdities which pass for railroad laws, and pass simple and direct laws forbidding abuses which everybody admits are abuses, such as unjust discrimination against persons or localities, with swift and sure redress for such grievances—leaving the question of rates with the owners of the roads,

providing only that the net receipts shall not exceed——per cent. upon the value of the road, such valuation to be made at stated periods by constituted authority, it would be a much nearer approach to justice, although even such a system would be open to grave objection.

At all events, if we must have legislation, all must agree that it should be of the simplest possible character, and uniform throughout the country.

Not the least of our present troubles is the conflict of the state laws with each other and with those of the nation, and jealousies of the states as regards each other. One western state has done its best to erect a Chinese wall around itself, and to so adjust the rates of its railroads as to "protect" its merchants against those of other states by giving them advantages out of the railroad treasuries.

When a road is located in ten or twelve states, as some of our roads are, it is no easy task to conform to the rules and regulations of each, or even to keep track of all the laws passed, apparently for the sole purpose of hampering and restricting the roads in every way possible. There is no parallel in the commercial history of the last century for the persecution undergone by the railroads of the western states in the past ten years. I am very far from claiming that railroad management has been always ideal, or that there have not been instances where railway officials have abused the confidence reposed in them by the shareholders, as well as used their power to impose upon the public—but I do maintain that these cases have not been numerous, and that in view of the rapid growth of our railway system it has been marvelously well handled and wonderfully respectful of public rights.

Of course there is an alleged reason for all this, and the advocate of state interference will tell you that railroads are monopolies, and that they are guilty of unjust discriminations as between individuals and localities, and that some power must protect the people against these corporations. Broadly speaking, these statements and charges are not true. No railroad monopoly exists, and no unjust discriminations. True there have been isolated cases where dishonest or weak men have held responsible railroad positions, and have used such power as they possessed for the private benefit of themselves or their friends; but these cases have been rare and constitute no justification for general legislation. As to monopoly, there are but few localities in the country which have not more or less direct access to more than one means of transportation, and no competition is stronger than that between carriers. There are few industries in the country in which a monopoly is so little possible as in the transportation business.

Moreover, I desire here to assert my profound conviction that the anti-railroad sentiment finds little or no support among the classes who use the railroad most, and who are most conversant with its methods. Merchants and manufacturers are not of the classes that clamor for legislation. The war cry is always shouted by unscrupulous political demagogues and place hunters who endeavor to make the farmer believe that he has a real grievance, and who ride into power by the strength of his votes.

It is obvious that justice to railroads is not to be expected from the several states. In the first place the commissioners are elected by the people, and are responsible only to their constituents; not only do the

railroads have no voice in their selection, but in many of the states the law explicitly provides that the commissioners shall own no railroad stock or be in any manner connected with a railroad at the time of their election, and the result of these provisions naturally is that the persons elected have absolutely no knowledge of the subject with which they are to deal. Even if they are capable of absorbing information they are seldom given an opportunity, for they have short terms, and about the time one of them begins to have a dim perception of his duties another politician succeeds him. It is hard to speak patiently of the subjection of the vast railroad interests of the country to the ignorance and caprice and political ambition of these commissioners. I have known one of them to insist upon a reduction of rate, which he admitted to be unreasonable, because the people of his county were specially interested in the article affected by the reduction, and I have known another to threaten vengeance because a railroad company refused to issue passes to some of his friends. Not all state commissioners are of this class; there are many and honorable exceptions, but so long as the office is made a reward for political services, or goes to those who can talk loudest against corporations on the stump, the railroads have little to hope for from the state commissions.

The public is not honest with the stockholder; it refuses to regard his property as either purely public or purely private, but takes refuge behind the "quasi-public" proclamation. Now I maintain that the railroad is either a private or a public corporation. If the former it should be left free to manage its own affairs, as do other private corporations; if the latter, it should be protected as are other public corporations. The United States permits no competition with its post-office department; it charges two cents for carrying a letter from New York to Philadelphia, though I have no doubt that private or "quasi-public" corporations could be found that would be glad to do it for less. I repeat that we should either be let alone or taken care of, either be turned out on the world to work out our own salvation with no restrictions, except such as surround other business ventures, or else taken under the protection of government. It is not fair to restrict while refusing to protect. No invested capital is so powerless as that invested in railroads—none so exposed to attack—none so immovable.

There is a main line of road in this state which has cost nearly \$100 000 per mile, yet for a few dollars an enterprising promoter can get a charter for a parallel road; he can inform the people along the old line that they are being charged too much, and that if they will aid him he will make lower rates; he can get donations of right of way and perhaps cash; he can (or has been able to do so in the past) find confiding parties to take his bonds for a sum greater than the cost of the road; he can build a road for \$20,000 a mile, over which he can do business after a fashion, and he can annoy and harass the older road beyond measure, though he has not a quarter as large an investment, and although he cannot afford the facilities which the public demands and which the older road has furnished at great expense. The state regulates but does not protect—railroad building is free—the state takes cognizance of our profits that they may not be too large, but refuses to consider our losses because we, in that case, are a "private corporation"; it is not fair and it is not honest.

Misstatements as to railroad motives and methods are rife in all conceivable forms, and little is heard on the other side except in technical journals, which do not reach the masses. It has been so popular to abuse the railroads that the other side seldom gets a hearing.

There is a parable which runs in this wise :

"A man walking with a lion showed him, in the ostentation of human superiority, a picture of a man killing a lion, upon which the lion said very justly: 'We lions are none of us painters, else we could show a hundred men killed by lions for every lion killed by a man.'"

So may the stockholder say: "For every man injured by the misdeeds of railroads I will show you a hundred stockholders injured by the injustice of the public toward them." But as the lion was unable to get his case before the public, so is the stockholder.

The managers of railroads, while men of ability, are mainly specialists, and have not been selected for their qualities as orators or as writers; they can state a case in plain business fashion, but theirs is not the "gift of gab" and they are busy men; they daily read in the public prints the most outrageously false and misleading statements of their doings, their motives and their aims, and they are silent under attack. The railroad side of the question is heard only in technical journals, which the public does not read, and thus the public's education is all on one side. I have faith to believe that, as knowledge and education increase, and as the American public becomes more familiar with what is known as the "railroad problem," the conclusion will be arrived at that the roads should be released of most of the restrictive legislation under which they now labor, or else that the government should buy and operate them. The latter method would be a national calamity, but it would be consistent with the ideas of those who believe in a paternal government. The present middle course, which confiscates in whole or in part the property of the stockholder, seems to me as wholly unjustifiable and impracticable, as the attempt in the middle ages to fix the price and size of a loaf of bread, regardless of the cost of rye. Perhaps this juster sentiment may not come while we live, but it will come.

As for us, who have been crying in the wilderness these many years, we have had our sensibilities blunted by constant blows, and have from much pounding become more or less *numb*; we cannot parry the blows, but we feel them less than we used to. None the less should it be our duty to begin and continue a campaign of education, to the end that the people may know the truth and observe the right.

PRINCIPLES OF RAILWAY LEGISLATION.

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No topic of current discussion is more important or perplexing than the appropriate scope of legislative enactments relating to the business of common carriers. It is a subject which may well command the most thoughtful reflection, for it touches the welfare of every person and taxes the resources of public authority. Transportation by rail is of such recent origin, and has developed with such wonderful rapidity, that neither its rights nor its obligations are yet fully defined. The railroad of today is not only the chief agency by which the internal commerce of the country is carried on, but its influence is so powerful and its relation to every form of industry so intimate and vital that its proper place within the sphere of government control presents an inquiry of the gravest import.

Such consideration of this question as I may venture to attempt on the present occasion leaves out of view, for the most part, the law-making power of the several states. That power has been lavishly exercised hitherto in creating the multitude of corporations which furnish the facilities of railway conveyance, and which have sprung into being as if born of enchantment. Already their lines stretch out in every direction from one end of the land to the other. They have bridged the rivers, penetrated the wilderness, climbed over mountains and traversed the deserts with their highways of steel. They have enriched every occupation, given multiplied value to every pursuit and made our vast wealth possible; they are at once the greatest achievement and the greatest necessity of social and industrial progress.

But these manifold benefits have not been realized without their attendant evils. The resistless energy which has produced these marvels of enterprise and utility was not always begotten of wisdom; it was sometimes the fatal offspring of folly. Excessive and premature construction has been forced by popular demand, or found its incentive in visionary and baseless expectations. The schemes of reckless speculation have often resulted in a capitalization wholly unwarranted by cost or earnings, while the temptations of financial necessity have furnished an excuse for dishonest management. The opportunity to engage in the business of railroad transportation has been practically unlimited, because under the laws of the different states the formation of railway corporations is easily effected, and the restraints to which they are subjected meager and ineffectual. Invested with extraordinary powers and used not infrequently as the instrument of personal ambition, they have been projected in many instances without reference to public requirements, and maintain a precarious existence by the constant and shameful disregard of private rights. This prolific crea-

tion of common carriers by the facile machinery of local statutes finds its inevitable outcome in the present situation. We are confronted with an aggregation of independent railroads all of which, with few exceptions, derive their origin and their power from state authority. The vast operations which they carry on are controlled by separate boards of management, and the relations between different lines are friendly or hostile as interest or caprice may determine. Their united capacity greatly exceeds the volume of traffic furnished for transportation, and so a large part of the competitive business must either be parcelled out by unstable agreements, or contested for from day to day with ruinous rate cutting and vicious discriminations. Every new line increases the friction, and frequent receiverships testify of pecuniary burdens which current revenues will no longer bear.

It is now so generally conceded as to make argument unnecessary, that remedial legislation, suited to present conditions and adequate to permanent relief, must come from the general government. The restricted jurisdiction, and other obvious limitations upon the powers of the several states, preclude the exercise of that comprehensive and efficient authority required for the regulation of public carriers. The business of transportation, more than any other, has become national in its character, and therefore the laws by which its agencies are controlled, by which its duties and privileges are measured, through which its abuses are to be corrected, and under which its greatest advantages may be secured, must be uniform in their operation and co-extensive with the interests to which they relate. Upon this assumption, which may safely be made, we are brought to the wide range of possibilities within the sphere of congressional action. At one extreme lies the policy of non-interference, at the other extreme is government ownership. Congress may return to the attitude which it occupied before the act to regulate commerce was enacted; it may refuse to assert any authority over the movements of interstate traffic, and remit all carriers to state supervision and the uncertain influence of natural laws, or it may inaugurate a scheme by which the various railways and water lines shall be acquired, and make the national government sole proprietor of all the facilities of transportation. Prior to 1887 Congress had made no comprehensive effort to regulate commerce between the states. Its constitutional power in this direction had never been exercised and consequently never tested. The railroads had already absorbed a large portion of the carrying trade and were prosecuting their operations far and wide, regardless of state boundaries, and restrained only by the lax and insufficient provisions of the local statutes by which they were chartered. Under this system, or want of system, which characterized the history of railway legislation up to a recent period, there arose a series of evils and abuses which the states seemed powerless to suppress, and which assumed such startling proportions that the interference of Congress was vehemently demanded. So the statute of 1887 was adopted and the work of regulation commenced. There is no longer much doubt, I apprehend, among those qualified to judge, that the supreme authority of the nation ought to be exerted, to some extent at least, in overseeing the movement and supervising the methods of interstate commerce. The business of the railroads has become so immense, the interests they affect are so enormous and far-reaching

that their own prosperity, scarcely less than the protection of the public, requires some measure of national regulation. Indeed, many of the ablest and most prominent railway managers avow their conviction that government supervision in one form or another is an admitted and palpable necessity. No incident in this connection has greater significance than the recent appearance before a congressional committee of men like Mr. Depew of the New York Central, Mr. Roberts of the Pennsylvania, and others of similar standing, representing the most important lines and nearly half the railway mileage of the United States, insisting that the railroad interests of the country require federal protection, and urging that greater power and efficiency be given to the present statute. The force of their statements is not impaired by the circumstance that they advocated a particular amendment, for their utterances were positive and unequivocal in favor of national regulation. But whatever may be the attitude of the railroads upon this question, the idea that the strong arm of the general government shall hold the balance of power between the carriers and the people has taken a secure and permanent hold upon public opinion. There is a growing perception of the dependence of every occupation upon the agencies by which internal commerce is conducted, and an increasing determination to subject those agencies to all needful control. The people will not tolerate the wrong-doing and injustice which find opportunity in the absence of legal restraints, and it may be accepted as a settled proposition that interstate transportation will henceforth be regulated by federal authority. The alternative of government ownership, with its consequent monopoly of the carrying trade, while recommended strenuously by some, has thus far made little impression upon public sentiment and exhibits no signs of popular approval. It is a project which seems wholly inharmonious with the spirit and aims of democracy, a scheme of such dangerous import that it will be looked to for relief only when all other remedies have proved unavailing. Neither its feasibility nor its defects deserve serious discussion.

Now, within the broad field which invites the law-making power of Congress, between non-interference which has been definitely abandoned and government ownership which is at present impossible, what legislation is most practical and appropriate, and by what statutory policy will the rights and relations, both of shippers and carriers, be most usefully controlled. This is the question of immediate importance—a question which dismays by the difficulties it presents, yet one which fascinates attention by the vast interests it concerns.

It is not my purpose, nor does it appear suitable at this time, to discuss in detail the various plans which have been proposed, nor to make myself an advocate of particular measures. I undertake nothing more than to set forth, in my own way and from my own standpoint, some general considerations which, in my judgment, should indicate the range and determine the character of legislative action.

In the foremost place, chief of all others, is the distinctive nature and peculiar office of public transportation. Upon this subject there is still much confusion of thought and a surprising want of correct understanding. The partiality and injustice which give rise to such frequent complaints against public carriers may be attributed, in many instances, to a common misconception of the nature of their services and the office

which they perform. The inherent difference between transportation and the various industrial pursuits which depend upon it, is often ignored or wholly overlooked. Both the managers and the patrons of railroads are slow to perceive that the business of public carriage is unlike other occupations. Even the opinions of learned judges, and the language of local enactments, not infrequently disclose ignorance or indifference respecting this distinction. The laws by which railway corporations are created are framed in close analogy to the statutes under which corporate bodies are organized for other purposes, the legal regulations applied to their operation and management are substantially the same for both classes, and, in a variety of ways, the public function of the former is confounded with the private interests of the latter. Now, it cannot be too strongly insisted upon that the "right" of a corporation to construct and operate a railroad is fundamentally and radically different from the "right" of the public to use and enjoy its facilities. It is one thing to own a railway; it is quite another thing to be entitled to its services. One is a property right, the other a personal right; one is a possession, the other a privilege; one is an acquisition, the other an endowment; one may be bartered away, the other is "inalienable." In the very nature of social order, transportation is a necessity. It stands in the catalogue of primary wants. To provide the highways of travel and the agencies of commercial exchange is a function of government, in every sense legitimate and in every respect essential. To regard these agencies as a species of property, subject to the same rules which govern the accumulation and enjoyment of other possessions, is a mistaken and mischievous conception. Transportation is not a commodity. Its physical appliances, its fixtures and franchises are property; they are acquired. Not so the right to its facilities; that is enjoyed. The ownership of the carrier is the privilege of the public. This privilege differs from every form of private enterprise, for it is afforded by virtue of authority proceeding from the state. There is no natural right in the individual to engage in the business of railway transportation, because that business can be carried on only by taking private property against the will of the owner, and that high prerogative belongs to the government alone. To provide the necessary means of public carriage the railroad must exercise extraordinary powers, which are secured from and delegated by the state. Through these delegated powers, by the aid of this unusual and supreme authority, it participates in the duties of civil administration, and discharges obligations which are founded in the constitution of society. The railroad, therefore, can rightfully do nothing which the state itself might not do if it performed this public service by its own agents, instead of entrusting it to corporations which it has created.

Upon this foundation, laid in the nature and necessities of social order, rests the inherent right of every person to just and equal treatment in all that pertains to public transportation. In fixing the basis of rates and charges, no carrier should be permitted to make discriminations either between individuals or localities. The right to use the agencies by which inter-communication is effected, and by which all the products of labor acquire exchangeable value, is a common and fundamental right, the very essence of which is equality. If the gov-

ernment itself should undertake to supply the public need in this direction, no sort of partiality would be tolerated or attempted. Every function which the state performs, every power which it directly exercises, and every activity which it exclusively controls must be for the equal benefit of all. Any difference between wholesale and retail prices for the privileges and immunities, which public authority is bound to provide, is offensive and intolerable. For the government to make distinctions in its modes of operation, by reason of the amount of service which it may be required to perform, or on account of the differing industries and occupations of its subjects, is to depart from its legitimate sphere, and violate the principle upon which it is founded. The farmer who sends but one letter a year is entitled to the same rate of postage as the merchant who sends hundreds a day. The measure of import duties is the same, whether the entry be a case or a cargo. The amount of service never affects the relative price. Much or little, it is all in the same proportion.

This is the rule which should be rigidly applied to public transportation. Impartiality, strict and unvarying, is the requirement which should be firmly imposed, and from that standard no deviation should be permitted. The carrier may not be allowed to discriminate between individuals on account of their position, influence or personal qualities, for these distinctions furnish no ground for giving one person cheaper conveyance than another. The large shipper is entitled to no advantage over his smaller competitor, either as to charges or facilities, for both should be served at the same rate. If concessions to particular persons, because of their greater patronage, would not be possible under government ownership, they should not be permitted under private ownership. If in one case the rule of equality would be observed, in the other it should be enforced. As I view the matter, the state has as much right to farm out the business of collecting revenues or preserving the peace, and allow the parties performing those offices to vary the rate of taxation according to their own interest, or sell personal protection to the highest bidder, as it has to permit the great function of public carriage to be the subject of special bargain and secret dicker, to be made unequal by favoritism or oppressive by extortion. No service which government undertakes to perform can be made useful, and no duty which rests upon it is more imperative than to secure to the people just and equal treatment by every common carrier.

This duty is recognized with great clearness of perception in the "Act to Regulate Commerce." It was the intention of Congress, in that enactment, to insure fairness and impartiality in all that relates to railway transportation. The provisions of the act are restrictive in character, and they call for a construction in harmony with their beneficent aims. It is much to be regretted that the federal courts, in some instances at least, have seemed unable to realize their scope or to appreciate their purposes. The grave conditions which existed when this statute was passed appear to have been left out of view, and full weight has not been accorded to the express declaration that its regulative features were an addition to remedies furnished by the common law. It was the design of Congress to provide something more than a procedure for the correction of demonstrated wrongs; its higher and

broader endeavor was to *prevent wrong doing*. To that end general rules for the government of carriers were prescribed, rules well calculated it would seem to secure the actual and relative equality which results from effective regulation. The filing and publication of rate sheets, for example, is not merely a standard for determining whether particular charges are unjust or discriminatory, and by which reparation to injured parties may be measured, but the more significant purpose is found in the provision that the rates so filed and published are the only compensation which the carrier may charge, collect or receive. It is not left for any tribunal to decide, whether a variation in rates for like and contemporaneous service inflicts injury upon an individual or a community, the law itself declares that a departure from schedule charges is *per se* unjust discrimination, and unlawful. The long and short haul clause contains a similar declaration. It is unnecessary to show that undue preference or prejudice results from charges which are greater for longer than for shorter distances over the same line, for such an adjustment of rates, in ordinary cases, is condemned by the terms of the statute. Yet some judges have construed these prohibitions as applying only where actual damage results to an assignable person. Such a construction virtually treats the carrier as a private corporation, takes little account of its public obligations, and overlooks the real purpose of the law-making power in enjoining compliance with its requirements. The peculiar office which transportation performs is often obscured by issues founded upon individual rights, and concrete questions arising from the contract relations between shipper and carrier not unfrequently exclude considerations of public policy, far more important than the particular controversy. For these reasons the early action of Congress should be invoked for a legislative construction of important features of the act, an interpretation so definite and unmistakable that neither can its provisions be questioned nor its wholesome purpose defeated. Crude and imperfect as this statute is, difficult of enforcement and weakened by adverse decisions, nevertheless it is the legislative expression of a great and vital principle. It contains the substance of correct doctrine respecting the office and obligations of public carriers, and emphasizes the conviction that their proper regulation is a recognized national duty.

In a general sense it is quite true that all measures of legislation are means to the one end of securing, at all times and under all circumstances, just and equal charges for public transportation. But in devising the legal machinery by which that consummation shall be most speedily reached, and the full benefits of equality most completely enjoyed, other considerations than those relating to the nature and office of public carriage demand earnest and thoughtful attention. I am very much impressed with the notion that the facilities of domestic transportation, the agencies by which inter-communication is maintained and the distribution of industrial products effected, should be regarded in their entirety and treated as a single and indivisible unit for all the purposes of legal regulation. Every railway and every water line constitutes an inseparable element of a vast and intricate organism. There are many members, yet but one body. Practically there is no such thing as an independent and isolated carrier by rail

or by water. Between the different parts of this complex system there is such mutual dependence, such intimate relationship, that whatever affects one must in greater or less degree affect the others also. If one member suffers, all the members suffer with it. Transportation is a constant and universal necessity. There is no time when its facilities can be dispensed with, no place where its services are not urgently demanded. It is the ever-present and unyielding condition upon which personal welfare and social progress continually depend. For this reason state legislation is unsuitable in scope and must be inadequate in action. It is influenced by the circumstances and prejudices of locality, and is therefore unequal in its operation and changeable in its attempted restraints. So far as it undertakes the task of regulation, it is liable to be feeble and inefficient in results, or it may be so vexatious and burdensome as to be plainly oppressive. Both habits find illustration in local statutes recently enacted. But the function of public carriage cannot be separated into parts, as the country is divided into states. By the union of sovereignties it becomes interstate and national. It cannot be segregated without fatal impairment. It is the nerve power of the nation, sensitive to its furthest extremities; to divide it is to destroy it. The laws which regulate property in different localities may be variable and conflicting without serious injury, but the laws which regulate commerce must be uniform and harmonious in all the territory which submits to one jurisdiction. Rights which are acquired may be varying and dissimilar as between one state and another, but rights which are *inalienable*, which are a privilege and not a possession, must have common and equal protection in every part of the union.

This point of view permits two or three more specific observations. If the propositions already stated are correct, it follows that any scheme of legislative control designed to give greater efficiency and value to this public service, and to promote thereby the general welfare, should embrace in its provisions all the agencies of transportation which are within the jurisdiction of the general government. The act to regulate commerce, therefore, is insufficient in scope, because it extends only to interstate carriers by rail, and leaves untouched and unregulated the great volume of traffic which seeks transportation by water. But rail carriage and water carriage are inseparably connected. They act and react upon each other. They cannot be dissociated in fact and ought not to be in law. Their united facilities are demanded by public requirement. They join in a common service. The internal water routes by lake and river and canal, and the coastwise lines of gulf and ocean, transport an enormous tonnage between points near and remote, and thereby give indispensable aid to commercial prosperity. They are confined to the highways which nature has provided, while the railroad can choose its location and change it at pleasure. Each mode of conveyance has its peculiar advantages; each is a competitor for public favor. Both of them participate in interstate carriage, and the constitutional power of Congress "to regulate commerce between the several states" applies with full efficacy to all the agencies of water transportation. The same reasons which induced the law-making power to place railway lines under specific restraints call for like limitations upon the delegated

powers with which water carriers are also invested. The circumstance that one carrier uses the natural facilities of inter-communication, while an artificial roadway must be constructed by the other, affords no excuse for exempting the former from any obligation rightfully imposed upon the latter. Each forms a part of an inseparable system; each is a custodian of a public privilege, and each should be amenable to public authority. Not only upon grounds of abstract justice, but for the benefit of the people and in furtherance of the objects for which the duty of railway regulation was assumed, the government should include in its plan of supervision all the agencies of water transportation within its jurisdiction.

Again, no just theory of legislative action will proceed upon the assumption that the people alone are in need of protection, and that the railroads can take care of themselves. I have little sympathy with such an unfair and illogical contention. Between shippers and carriers there is reciprocal dependence rather than mutuality of interest. Neither can exist alone; neither is independent. The bonds which hold them together are indissoluble, yet are they so conjoined that one of them cannot gain undue advantage without positive injury to the other. The shipper is entitled to have his property transported at a reasonable price; the carrier is equally entitled to reasonable compensation for performing the service. The collision of pecuniary motives by which both parties are influenced gives rise to the controversy over rates and charges. This conflict is incessant and sometimes extremely severe. But the shipper is not always the under dog in the fight. It happens upon occasion that he gets much the best of the bargain. The necessity of the carrier is not unfrequently the opportunity which the shipper does not scruple to turn to his own profit. Odious extortions have often been practiced by carriers, but shippers also are sometimes arbitrary and unjust. The public service in which the carrier engages is undertaken for private gain; the shipper avails himself of this public service, likewise for private gain. The selfishness of human nature is on both sides of the transaction. Now the object of legal regulation is to hold these opposing forces in stable equilibrium, to reduce contests and complaints to a minimum, and to bring the dealings between shipper and carrier under the control of mutual justice. The sufficient scheme of legislation, therefore, will recognize the possibility of wrong-doing on one side as well as on the other; it will be judicial rather than partisan in its aims and requirements, and while equipping the shipper with ample protection will also furnish the carrier with all needful defenses. This seems especially true of relative rates between competing centers of trade and between competitive articles of traffic. Questions of this character are constantly arising and their intricacy is beyond all comparison. They must be brought to solution by judicial procedure and judicial determination. So far as the law can provide remedies for grievances of this description they should be available to the carrier as well as the shipper. It may sometimes occur that just results can be reached only by directions which tend to the pecuniary advantage of the carrier; but justice is the end to be attained by remedial legislation, and its defeat should never be occasioned by defective or one-sided enactments. I therefore concur with Judge Veasey that the power to determine what charges are

reasonable, a power without which all attempts at regulation are delusive, should include and carry with it the power to prescribe minimum as well as maximum rates. Reasonable payment by the shipper and reasonable remuneration to the carrier are alike involved in the idea of public regulation; and legislation which expresses the full meaning of such regulation and makes its full purpose effective will not be wanting in provisions which conserve the interest both of the public and the public servant.

It goes without saying that the regulative powers conferred upon Congress by the federal constitution are not wisely or justly exerted if the effect of their operation diminishes the ability of domestic carriers to meet the competition of rivals not subject to our jurisdiction. The proposition requires no argument. While due regard should be had for the interests of American shippers and passengers, it is manifest that no advantage in respect to domestic traffic should be given to foreign lines of transportation by means of inflexible restrictions upon our own carriers. The true policy will be found, I apprehend, in compelling these foreign roads, under the coercion of statutory restrictions imposed by Congress, to practically subject themselves to the provisions of the act to regulate commerce by making compliance with its requirements the condition of engaging in international business.

This view of the nature and office of public transportation, and the necessity for its just and uniform regulation by federal authority, forces upon us another question of immediate and pressing importance concerning which I feel bound to state in a few words my personal convictions. Legislation upon this subject, I am thoroughly persuaded, to be adequate in design and capable of accomplishing the most useful results, must recognize and adjust itself to the coöperative tendencies which mark the closing decade of the nineteenth century. The advent of steam and electricity has not only wrought a revolution in all the methods of distribution and exchange, but is fast undermining the economic theories so long and so implicitly accepted. It is folly to shut our eyes to unmistakable facts, or to stand in the way of inevitable events. The competitive philosophy of Adam Smith may have satisfied the era of stage coaches and spinning wheels, but it will not answer the purposes or meet the requirements of this marvellous generation so restless in thought and resistless in action. As astronomy has been corrected, theology revised, and civil administration emancipated from the tyranny of irresponsible power, so our political economy and many inherited notions respecting the diffusion of wealth and the acquisition of property must be largely modified if not wholly reconstructed. When communities were isolated by distance, and the sphere of activity confined within local limits; when it took two weeks to haul a wagon-load of goods from London to Edinburgh, the attrition of rivalry was complacently endured. But now when the ocean is bridged by the steamship and every sea threaded with whispering wires; when the swift locomotive, rushing across continents like the shuttle through the loom, weaves this many-hued and majestic fabric of commerce which covers the globe; when men are no longer localized in effort or achievement, and the thought of one is the instantaneous possession of all, the friction of unbridled competition has become irksome and intolerable. Some relief from its hardships and some check

upon its wastefulness must surely be provided. Fools may deride and demagogues denounce, but neither protestation nor agitation nor legislation can impeach the utility or prevent the advance of industrial federation.

Competition is essentially selfish in its nature, unbrotherly in its instincts and uncharitable in its methods. It is the effort of the individual to gain personal advantage at the expense of his fellows, and its cruel creed is "every man for himself." Such a doctrine is quite unsuited to the interlacing and interdependent activities of a complex civilization, and wholly unequal to the increasing demands of associated life. The whole trend of modern industry is towards wider fraternity, larger organization, cheaper production and distribution, to the end that all labor may receive more stable and adequate reward, and thereby the welfare of wage earner, and wage payer as well, most surely promoted. As the implements of modern warfare are becoming so devastating in their effects that nations will be compelled to live in amity, so the destructiveness and exhaustion of competitive industry make monopoly a necessity.

In the vast business of public carriage—the business which unites every craft and vocation, and furnishes at once opportunity and incentive for every pursuit—some way of escape must be afforded from the rigors and reprisals of unrestricted competition. The situation of many railways at the present time is not unlike that of the great powers of Europe. Each in a state of armed neutrality watches the other with jealous suspicion, while, in their most amicable relations between themselves, they maintain an approximate peace by lavish preparation for war. The process is expensive—the result unsatisfactory. Their revenues are depleted, their management embarrassed, their usefulness greatly impaired. They take from the substance of the people more than three millions of dollars a day—an enormous tax in the aggregate, yet their surplus earnings often fall below the requirements of solvency, and are seldom sufficient to relieve the anxiety of investors. The facts of common experience and familiar knowledge demonstrate the inconsistency and unwisdom of a legislative policy which enforces competition by legal decree, and at the same time condemns as misdemeanors the methods and inducements by which competition is usually effected. The time has come for harmonizing the operations and combining the facilities of common carriers, that they may better meet the demand for equal treatment, stable rates and cheaper transportation. Surely this government is strong enough and great enough; surely it has the power and sagacity to permit this incomparable service to be performed by friendly association, and at the same time provide the public with ample protection against all the dangers of corporate monopoly.

GOVERNMENTAL REGULATION OF TRANSPORTATION AND ITS PRACTICAL EFFECT.

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This proposition is very broad in its terms, sufficiently so to include not only all railroads by whomsoever owned, whether by the government or by private individuals or corporations, and also all other kinds of transportation. It is not proposed, however, at this time, to cover all the ground legitimately within the terms of the proposition, but the discussion will be confined to railroads only.

In many of the countries of Europe, railroads are owned by the government, and, of course, are under governmental control in all respects, and in all their departments. In this country they are owned mostly, if not exclusively, by private corporations or individuals, and the government, neither state or national, has any pecuniary interest or ownership therein. Notwithstanding their private ownership, it is claimed, and the claim is admitted, that the government has, to a certain extent, a right of control or regulation over its railroads, and although the proposition to be discussed is, in its terms, sufficiently broad to cover both classes of roads, it is believed that its object was to consider only roads not owned by the government, and this paper will only attempt to deal with the question in respect to the right of governmental control or regulation of such roads.

It is somewhat of an anomaly that property owned exclusively by individuals should be subject to governmental regulation or control in its use and operation; but it is admitted that such right of regulation or control exists in respect to certain kinds of property, and that railroads owned by private corporations or individuals are of that class. In discussing this proposition, one of the most important questions to be considered is the reason and purpose of this principle and the extent of such regulation and control under our law.

The word "regulation" only is used in the proposition proposed, yet regulation of the use of another's property necessarily implies control thereof to a greater or less extent. The word control is therefore added as a necessary consequence of regulation.

This principle applies, in our law, in all cases where private property is devoted to a public use. A railroad is such property, no matter who owns it. "The use is public because the public may create it, and the individual creating it is doing, thereby and pro tanto, the work of the state," and in so doing he devotes his property to a public use. In order that an individual or corporation may construct and operate a railroad, it is necessary for him to receive from the state certain grants and franchises.

1st. The right to exercise the power of eminent domain of the state in securing the right of way necessary for the road.

2d. The privilege of locating its road bed and tracks along and across public streams, highways and other thoroughfares; and

3rd. The franchise and privilege to build, maintain, own and operate a railroad—which but for this grant would be adjudged a nuisance in respect to other property affected by it.

Such franchises are public grants, and clothe the property constituting the railway with a public use. It gives it a semi-public character, and subjects it to the regulation and control of the government, in behalf of the public, to the extent that its charges must be reasonable, and its management safe and convenient for the accommodation of the public. This right of governmental regulation or control has been the subject of very much discussion and widely different views as to its extent and purpose. Many have insisted that this qualified right of regulation and control in the government is an absolute right, extending even to confiscation of the property, and that the governmental power, however unwisely and injuriously exercised, was not subject to any limitation, control, or corrections. The legislatures of the different states have, many of them, assumed that their power over the charges and management of railroads was supreme; that the right to fix and establish the rates to be charged, and, in many cases, the mode and manner of operation of the road, belonged to the legislature, and that the companies owning the properties had no rights which they were bound to respect. This extreme view was substantially sanctioned by the earlier decisions of the Supreme Court of the United States, and the Chief Justice, in his opinion in the *Munn* case, held that the remedying of the abuse of such power was not a judicial question, and declared that "for protection against abuses by legislatures in this respect, the owners of roads must resort to the polls and not to the courts."

The only object and purpose that the government can have in such a matter is to protect the public in their just rights. When this protection is secured, governmental regulation and control ceases. The only rights of the public in that respect are that the railroads should be properly, safely and conveniently operated, and for a reasonable compensation. The public have the right to the use of the property for a reasonable compensation, and that its operation shall be safe and convenient to them. It has no right to manage or operate the road. The public have no claim to be served at less than a reasonable compensation to the owner for the use of the property, and in a manner reasonably convenient and with safety. The owner, as such, is entitled to that compensation, the control and management of the property, and an act of the legislature that deprives him of it, or any portion thereof, is a violation of his vested rights, and a taking of his property without compensation or due process of law. Manifestly, therefore, the extent of the power of the government to control railroads is to secure for the public the proper, safe and convenient operation of the roads for a reasonable compensation. When these objects are accomplished, the function of the government in the regulation, control and management of railroads owned by individuals is accomplished. The public rights are fully secured, and the government has no further control over railroad property than it has over property not attached to a public use.

In consequence of the railroads being so clothed by law with a public use, the company is bound to perform the services required of it for a reasonable compensation, and it is the right and duty of the state, if necessary, to see to it that the company charges only reasonable rates, and to take such action as may be proper to attain that end. This clothing of the property by law with a public use does not authorize the state to fix, or compel the company to fix its charges at an unreasonably low rate, or at rates that would not furnish to it just and proper compensation. It does not confer upon the legislature any power to fix the rates of the company, or do anything in that respect, except to make such necessary and proper rules and regulations as will result in fixing reasonable rates by the company. The right to fix and establish the rates to be charged, and the manner of the operation of the roads, notwithstanding this public use, and the duties and obligations thereby imposed, remains with the owner of the property, and it is its duty to fix reasonable rates for services to be performed, and safe and convenient modes of transportation. The only right which the public can claim, or the legislature or state enforce in regard to the price to be paid for the use of private property, clothed with a public use, or its management or operation, is that the owner should be restricted to the charge of a reasonable compensation, and reasonably convenient and safe operation.

Judge Strong in 15th of Wallace, 277, says (speaking for the Supreme Court) in regard to the right of the company to fix its rates, "that right is an attribute of ownership: . . . The right to make terms for the use of the roadway is in the grantee of the franchises, not in the grantor."

The state has no more right to assume the regulation, control or management of property affected with a public use, than it has of property not so affected, except as above stated, and the right to fix the price of the use of all property and its management and control, inheres in the owner thereof, the same in one case as the other, except as above stated, and within the bounds of reasonable compensation, the right of the owner to fix the charges for the use of property clothed by law with a public use cannot be questioned any more than the right to property not so clothed.

In the case of *Munn vs. Illinois*, 94 United States, which was not a railroad but an elevator case, the court held that the legislature had the right to fix the compensation to be paid to elevators; that their decision was final, and, although destructive of the property, that there could be no appeal to the courts for relief. Although this was not a railroad case, the doctrine of the decision was applied to railroads by that court, and has been largely followed in the state courts in railroad cases. This decision was made in 1876. At the October term, in 1889, the question involved was again brought before the court, as applied to railroads, after the lapse of thirteen years, in the case of the Chicago, Milwaukee and St. Paul railway company against Minnesota, 134 U. S. 418. In that case, under the statute of Minnesota, the railroad commission of that state had attempted to fix the price of the transportation of milk, against the consent of the company, in which they set aside the rate fixed by the company and established a different rate, which the company insisted was unjust and unreasonable, and not a

proper compensation. The Supreme Court of Minnesota held, in an action of mandamus to compel the company to adopt the rate fixed by the commission, that the action of the legislature by its commission fixing the rate was conclusive upon the company; that it could not be heard to allege that the rate fixed by the commission was unjust, unreasonable, and not a fair compensation, but that the rate fixed by the commission must be considered by the court as the reasonable and just compensation, and the only compensation that could be charged by the company, and thereupon issued a peremptory mandamus compelling the company to obey it.

Two questions were presented on the appeal.

1. Was the action of the legislature, in setting aside the company's rate and fixing the rate, conclusive upon the company?

2. Could the judicial power examine and inquire into the reasonableness of the rate fixed, and if unreasonable or unjust, set it aside?

In their decision, the court, speaking by Justice Blatchford, say:

"In the present case, the return alleged that the rate of charge fixed by the commission was not equal or reasonable, and the Supreme Court held that the statute deprived the company of the right to show that, judicially, the question of the reasonableness of a rate of charge for transportation by a railroad company, involving, as it does, the element of reasonableness, both as regards the company and as regards the public, is eminently a question for judicial investigation, requiring due process of law for its determination. If the company is deprived of the power of charging reasonable rates for the use of its property, and such deprivation takes place in the absence of an investigation by judicial machinery, it is deprived of the lawful use of its property, and thus, in substance and effect, of the property itself, without due process of law, and in violation of the constitution of the United States, and in so far as it is thus deprived, while other persons are permitted to receive reasonable profits upon their invested capital, the company is deprived of the equal protection of the law."

Justice Miller, in his concurring opinion, says:

"Neither the legislature nor such commission, acting under the authority of the legislature, can establish arbitrarily, and without regard to justice or right, a tariff of rates for such transportation, which is so unreasonable as to practically destroy the value of property of persons engaged in the carrying business, on the one hand, nor so exorbitant and extreme, as to be in such utter disregard of the rights of the public for the use of such transportation, on the other. In either of these classes of cases, there is an ultimate remedy, by the parties aggrieved, in the courts, for relief against such oppressive legislation, and especially in the courts of the United States, where the tariff of rates established either by the legislature, or by the commission, is such as to deprive a party of his property without due process of law."

The court further say:

"The issuing of the peremptory writ of mandamus in this case was unlawful, because in violation of the constitution of the United States."

Mr. Justice Bradley, who dissented from the opinion, said:

"I cannot agree as to the decision of the court in this case. It practically overrules *Munn vs. Illinois*, 94 U. S., and the several railroad cases that were decided at the same time."

It must therefore be regarded that the *Munn* case, as regards fixing the charges of railroads, is overruled, and that the power of the government in regulating these charges extends only to regulations which fix and establish a reasonable compensation for the service rendered, and that whenever the regulations are challenged as improper and unreasonable, the question is one for the judiciary to decide, and not for the legislature.

By this decision, and the principles therein established, all interests of the public in property clothed with a public use are completely protected and subserved, consistent with the just rights of the owners. When such property is safely and conveniently operated for the use of the public, and for a reasonable compensation, no interference, regulation or control by the government is required or authorized by law. The power of government extends only to the securing reasonable charges

for the public, and safe and convenient operation. The owner of such property is entitled to fix its own rates, within the bounds of reasonableness. This right is an attribute of his ownership, and when necessary to secure a reasonable return on his investment, he has the right to charge on all commodities such sum as will produce the greatest revenue, consistent with the largest movement of commodities, until the revenue received is sufficient to pay his operating expenses, taxes and repairs, and a fair and reasonable interest on the value of the property.

Any interference with such rates by the legislature, within these bounds, is unwarranted and unauthorized, and necessarily an invasion of the vested rights of the owner in the property, and is a taking of the property of the carrier without due process of law—in violation of the constitution of the United States.

Thus far this discussion has proceeded upon the supposition that the right of the government to regulate or control railroad transportation depends upon the special character of railroads, as property devoted to a public use; that is, property where some right or privilege is conferred upon its owners, by the government or municipality, which he can use in connection with his property, or by means of which the use of his property is rendered more valuable to him, or he thereby enjoys an advantage over others. In all of such cases, whether of railroads or other properties, the compensation to be received by the owner of the property so benefited becomes a legitimate subject of regulation by the government, to the extent above indicated.

It is sometimes insisted, however, that this power of regulation and control vested in the government, is not confined to this class of property, and for the reasons here stated, but that it extends to all property, or to all property of an important character in which the public have an interest, and that government, in its discretion, may regulate and control all property of an important character in which the public have an interest.

The word regulation, as used in this connection, means, practically, the right and power of the government to fix the price to be paid for the use of property, and for all services rendered in connection with it. It is denied that the government is possessed of any such right.

1. As to property of an important character in which the public have an interest; the right and power of the government over such property is not different from its general right as to all property. The public have an interest in all property, more in some kinds of property and business than others. This public interest in it, however, does not subject it to governmental control. For instance, the public of Chicago are much more interested and affected by the property and business of Marshall Field's store, than in that of any railroad of the city. Yet it is not pretended that the government has a right to regulate, control or manage his business, or fix his prices. His business and property is not devoted to a public use, and therefore he has the absolute right to fix his own prices, and make his own regulations, as he thinks proper. The same is true of all other property and business of the country, whether or not of sufficient importance to attract public interest thereto. If not devoted to a public use, the government has no right in its management or control.

2. Again, it is claimed that this right of governmental control belongs to the government in virtue of its police power. It is not denied that the police power of the state extends to all property therein. It is a function of government, and under it the state is bound to protect the lives, limbs, health, comfort and quiet of all persons, and all property in the state, and for that purpose may regulate its use to the extent necessary. The maxim, *sic utere tuo ut alium non loedas*, being of universal application, it must, of course, be within the range of legislative action to define the mode and manner in which everyone may use his own so as not to injure others.

The Supreme Court of Massachusetts, in *Commonwealth vs. Alger*, held that every holder of property, however absolute and unqualified may be his title, holds it under the implied liability that his use of it shall not be injurious to the equal enjoyment of others having an equal right to the enjoyment of their property, nor injurious to the rights of the community.

On this subject, Chancellor Kent, speaking of the inviolability of property, says:

"But though property be thus protected, it is still to be understood that the lawgiver has a right to prescribe the mode and manner of using it, so far as may be necessary to prevent the abuse of the right to the injury or annoyance of others, or of the public. The government may, by general regulations, interdict such uses of property as would create nuisances and become dangerous to the lives or health, or peace or comfort of the citizens. Unwholesome trades, slaughter houses, operations offensive to the senses, the deposit of powder, the application of steam power to propel cars, the building with combustible materials, and the burial of the dead, may all be interdicted by law, in the midst of dense masses of population, on the general and rational principle that every person ought so to use his property as not to injure his neighbors, and that private interests must be made subservient to the general interests of the community."

This sort of regulation by the government is applicable to all sorts of property, and all kinds of service, and pertains no more to the regulation of a railroad, or its management and control, than it does to any other property or business, public or private. There is no warrant in it to the government to attempt to regulate or control the operation and management of a railroad, or any other property, except so far as the proper police regulations extend, such as the protection of the lives, limbs, health, comfort and quiet of all persons, and the protection of all property, and other proper police regulations. It is no authority whatever to the government to exercise the power of fixing the rates of compensation of property, or for its use, or for services in connection therewith.

In *R. R. Co. vs. Bowers*, 4th of Houston, 506, it is said:

"The legislature may at all times regulate the exercise of corporate franchises by general laws, passed in good faith, for the legitimate ends contemplated by the state police power; that is, for the peace, good order, comfort and welfare of society; but that it cannot, under color of such laws, destroy and impair the franchise itself, nor any of those rights or powers which are essential to its beneficial exercise."

Thus, acts regulating the mode of carrying passengers with a view to their safety, or regulating the speed of trains through towns and cities, or requiring certain precautions at public crossings, or the erection of fences, are proper exercise of the power of police regulation. * * * But, quite different are acts which directly touch the constitution of the corporation, or abridge or modify any of those corporate powers which are essential to the very end of its creation. Such powers, for example, as to the right to operate a railroad at all, the right to take toll or fare, or to adjust their tariffs, these are not police regulations."

And Judge Redfield, upon the same subject, in *Thorpe vs. R. R. Co.*, 27 Vt. 140, says:

"It must be conceded that all which goes to the constitution of the corporation and its beneficial operation, is granted by the legislature, and cannot be revoked, either directly or indirectly, without a violation of the grant, which is regarded as impairing the contract, and so prohibited by the United States constitution. * * * The privilege of operating the road, and taking tolls or freight and fare, is the essential franchise conferred. Any act essentially paralyzing this franchise, or destroying the profit therefrom, would no doubt be void."

Judge Cooley, in his *Constitutional Limitations*, 507, says:

"The limit to the exercise of the police power in these cases must be this: The regulations must have reference to the comfort, safety, or welfare of the charter; and they must not, under pretense of regulation, take from the corporation any of the essential rights and privileges which the charter confers. In short, they must be police regulations in fact, and not amendments of the charter in curtailment of the corporate franchises."

It is the right of the government in all these matters to regulate persons and property, with a view to the protection of life and health, and all other proper police matters; but this power extends only to police regulations, and has no application whatever to the regulation, management or control of a railroad in any other respect * * *. A regulation that a railroad should be operated in safety and conveniently, would doubtless come under this power, but not the power to fix its compensation.

In the matter of *Jacobs*, 98 N. Y., the Court of Appeals say:

"Under the mere guise of police regulations, personal rights and private property cannot be arbitrarily invaded, and the determination of the legislature is not final and conclusive. If it passes an act ostensibly for the public health, and thereby destroys or takes away the property of a citizen, and interferes with his personal liberty, then it is for the courts to scrutinize the act, and see whether it really relates to, and is convenient and appropriate to promote the public health. It matters not that the legislature may, in the title to the act, or in its body, declare that it is intended for the improvement of the public health. Such a declaration does not conclude the courts, and they must yet determine the fact declared, and enforce the law.

This appears to be a correct statement of the powers and duty of the court, whenever called upon to examine and inquire into a pretended police regulation, for the protection of the public health or otherwise, in order to determine whether it is a proper exercise of legislation under that power, or is in conflict with the constitution."

The police power, therefore, is not an authority for governmental regulation or control of railroads, outside of legitimate police jurisdiction. It furnishes no authority for fixing their rates or other interference, except as applies to all other property.

3. It is also claimed that all the powers formerly exercised by the British parliament are now possessed by our legislature, except as prohibited by the constitution of the state and nation. That the British parliament exercised the right to regulate and control not only the important affairs of its citizens, but a general paternal control of all their affairs, and prescribe the rights, liberties and privileges which its subjects might enjoy, and to control them in the most minute manner. The *Munn* case appears to have proceeded upon the principle that this paternal system of government was in existence in this country, and that government here possessed all the powers formerly exercised by the crown and parliament of Great Britain, except as specially restrained by our constitution, and that on this principle the government was authorized to regulate the rates and charges of railroad companies and exercise its supervising control, not only over such companies, but all other property and business, and generally to exercise a paternal supervision over the business and property of the citizen.

It is true that such functions and powers were formerly exercised by the British parliament. Several hundred years ago such legislation was the rule in England. In those days paternal government prevailed there, and it was regarded as the right and duty of parliament to watch over and protect the individual, to dictate the qualities of his food, and the character of his clothes, his hours of labor, the amount of his wages, his attendance at church, and, in general, care for him in his private life.

The statutes then provided how long one should work as an apprentice, how many there should be in proportion to journeymen, where

they should live, under what circumstances move to another neighborhood, how many hours they should labor, and for how long a time a journeyman should be employed, and that wages should be assessed by the year by the justices of the peace, who were also directed to settle all disputes between master and apprentice. We have to look to the times of that legislation in England to find a warrant in parliamentary practice to our legislature to fix the compensation of railroads or common carriers.

The Munn case was not decided on the ground that a special franchise or privilege had been conferred upon Munn and Scott by government, for no such privilege or franchise had been conferred. They were conducting their business simply as citizens, exercising their natural rights with no special privileges, and in a business that any and every other citizen might engage in who possessed or could obtain the requisite means for the purpose.

This Munn case originated in the state courts of Illinois, and was there sustained only by a divided court, and was affirmed by the U. S. Supreme Court by a divided opinion. Although it has been frequently quoted as authority by the state courts, and the Supreme Court of the United States, it has in several of its most important particulars been overruled by the court that made it.

In *Wabash vs. Illinois*, 18 U. S. 557, it was overruled so far as applicable to interstate commerce, and in the case of the *Chicago, Milwaukee & St. Paul railway company vs. Minnesota*, in the 134 U. S., it was again overruled in its most important provisions, relating to the finality of the action of the legislature, and the right of appeal to the courts from their decision; and although still quoted as authority in some courts, it would seem that a very small part of the original decision remains in force at the present time.

Those mediæval days of legislation in the British parliament, even, have long since passed, and with them has passed the whole doctrine necessary to sustain a paternal government. The declaration of independence was the voice of this young nation for freedom, declaring that it would not be subject to any such doctrine or practice, and our constitutions based upon that declaration of independence with the bill of rights therein contained, has in terms prohibited the exercise of such powers by our legislatures.

The kind of legislation invoked to sustain the decision in *Munn vs. Illinois*, and which was its controlling principle, has long since been condemned in England, and under our constitutional governments never had a real or practical existence in this country, prior to that decision. The regulation or control of railroads on the grounds therein stated is not authorized, and cannot be sustained upon principle.

The attempt to sustain governmental regulation and control of railroads under the police power or the paternal policy of government cannot be sustained; it is in direct conflict with the constitution which provides that no man shall be deprived of his life, liberty or property without due process of law.

Under our form of constitutional government it has ever been held to be the unquestionable right of every freeman to have a perfect and entire property in his goods and estate. 1 Kent's Com. 613.

As such freeman and owner of his estate, he has the absolute right to determine whether or not he will bestow his labor or furnish his property or its use for any other party, and the price at which such services or use shall be furnished, except where some special privilege has been conferred upon him by law in respect to such property. Any violation of this right is an infringement of the privileges and immunities of the citizen, a menace to his freedom and independence, as well as a denial of his right to enjoy his property. The right to control and fix the price for the use of property under our system of government inheres in the owner, and cannot be taken from him without destroying all benefits arising from such ownership, and it is his right and privilege to manage it so as to yield to him the greatest profit.

The value of property to the owner consists in his right to the use thereof, and it is the owner's right to get the largest amount possible for such use. As was said by Lord Ellenborough in *Aldnut vs. Inglis*, 12 East. 527, in speaking of the right of an owner to charge an unreasonable amount for the use of his warehouse:

"There is no doubt that the general principle is favored, both in law and justice, that every man may fix what price he pleases on his own property or the use of it."

Under our government and constitution, every man has the right to decide for himself whether he will labor or abstain from it, and fix the price for which he will bestow his services. So, with his property, he has the absolute right to fix its price or the price of its use by any other party, and in asserting and maintaining these rights he is protected by the laws and constitution of his country.

It matters not whether the amount demanded for the use of property is reasonable or unreasonable. It is the right of the owner to fix the price at which he will allow another to use it.

This is true of all property of a strictly private nature, but it is modified, as hereinbefore suggested, as to all property attached to a public use. Such property, although owned exclusively by the individual or the corporation, is clothed with a public use, and, in consequence thereof, the right of the owner to regulate, manage and control it is modified by the right of the government to regulate it in the interest of the public, and of the owner, and this power of government authorizes it to make such rules and regulations as will secure to the public its use for a compensation reasonable to the public and to the owner of the property. Under this authority, the legislature has no power to require that the price for the use of such property shall be fixed either above or below a reasonable compensation.

Were the legislature to fix the rate of compensation to be paid for the use of the property, it could not fix it above what is reasonable, for Lord Coke says: "The king cannot grant an unreasonable toll," and certainly the legislature could not fix, or authorize the company to fix, an unreasonably high compensation for property devoted to a public use. To do so would be to take the property of the shipper and give it to the carrier in violation of the constitution, which provides that no person shall be deprived of his property without due process of law, and certainly the establishment of an unreasonably high rate, either by the company or the legislature, could not be regarded as due process of law. The same principle requires that the government shall not establish, or compel the company to establish, an unreasonably low rate, for

such service as this would be taking the property of the carrier and giving it to the shipper in violation of the same provision of the constitution.

It may therefore be assumed, as established by our highest courts, that legislative or state control of railroads in this country is established to the extent that the state, through its legislature or otherwise, is entitled to require that all railroads shall be operated by the owners for a reasonable compensation, and that the state may make all suitable and proper rules and regulations to require the company to fix such rate. That the company is the owner, and as such is entitled to manage the property and fix the rates of charges subject to these rules and regulations, and such compensation must be a reasonable remuneration to the owner for the use of the property, as well as just and reasonable to the public, and that in case the rules and regulations in that respect fixed by government are challenged as unreasonable or unjust, the ultimate remedy for the party aggrieved is by an appeal to the courts. In other words, that the question of reasonableness or of reasonable compensation in such case is for the courts, and not the legislature, for final determination.

The practical effect of governmental regulation of transportation is very difficult to estimate correctly at this time. There is no general regulation of transportation in this country, aside from the common law, with its amendments in different states now in force, except so far as relates to railroads. There is no statute regulating or fixing the charges of common carriers as such, and the charges of common carriers, except by railroad, have never been limited or regulated in this country to the knowledge of the writer. In discussions upon this subject, it has frequently been suggested that Congress or the state legislatures should regulate the business of common carriers, by fixing their compensation. But I am not aware of any power conferred upon the government, either state or national, for that purpose, except so far as they are using grants and franchises or other privileges and advantages furnished by the government.

The common law as amended governs and regulates the business of common carriers, but not their charges or compensation. I know of no statutes attempting to regulate or fix their charges; and with the views above expressed, the power of government which could ultimately be exercised for that purpose, is not apparent, except as applied to railroads and other carriers similarly situated, who are exercising a privilege or franchise from government. It is difficult to understand how government can regulate or control the charges of carriers on our lakes and rivers, or the high seas, and a decision of any of our higher courts sustaining the validity of such a statute would be a novelty in jurisprudence.

The efforts for governmental control of railroads in respect to their charges, has not been a success generally. The granger legislation of 1873 and 1874 was allowed to remain on the statute books only some two years; and during that time was the constant source of litigation and ill feeling between the companies and the states where it existed, and all laws upon that subject were repealed by the voluntary action of the people. Some restrictions still remain as to rates in a few of the states, but the charges of the companies have in most instances been

reduced by competition and the laws of trade below the maximum rates as they now appear in such statutes.

The State of Minnesota in 1887 passed laws authorizing the appointment of a commission, with power to make such regulations and fix the charges of railroads in certain cases, and on certain conditions. The commission attempted to execute this law, which resulted in two suits, one, the Chicago, Milwaukee & St. Paul railway company against Minnesota, and the other the Minneapolis & Eastern railroad company against said state, which were taken to the Supreme Court of the United States, in both of which cases the court held the law unconstitutional. No attempts were afterwards made to enforce it, and it has recently been repealed.

The State of Iowa in 1888 passed laws authorizing its commission to fix a schedule of rates, and a classification for railroads in that state, as to their local business, and the railroads are to some extent operating under it, but not willingly, and whether the public of the state of Iowa is benefited thereby, the future must determine. No other state is actively attempting the enforcement of any such law.

Governmental control of railroads in some other respects in preventing unjust discriminations and privileges has been much more successful. This position of the statute was only a re-enactment of the common law upon the subject and has been beneficial in its effect when confined to unjust discriminations. There is no doubt that the general authority reserved to the government over railroads to regulate and control them to the extent that they shall be operated for a reasonable compensation is of great benefit to the public, and a wise provision of government when limited as the court has now fixed its bounds.

The efforts to enforce these provisions have often been unwise, and operated to the injury, not only of the railroads, but of the community in which they were made. A wise administration of these reserved powers would not injure the companies, and in some cases would prove beneficial to the community, but any attempt on the part of government to fix the compensation to be paid for the service of railroads is likely to prove a failure in the future as it has in the past. In the present condition of the country there is certainly no occasion for any such action. The laws of trade and the competition legitimately existing between railroads are far better safeguards to the people than any positive rules that could be adopted by the government, and are steadily operating to reduce such rates. The reduction of railroad rates has continued steadily since the decision in the Munn case, which attempted to establish the validity of the granger laws of the North-western states, without any statute requiring it.

In order to show the effect of the laws of trade and competition upon this subject I quote from the record of one of the principal roads affected by the legislation of 1874.

It appears that in 1865, the average rate charged by that road per ton per mile was 4.11 cents per ton. In 1874, the average rate per ton per mile was 2.38 cents per ton per mile, during which period there was no statute upon the subject. The granger legislation was in force during the years 1874 and 1875. The average rate per ton per mile for those years was 2.1 cents per ton per mile. Since then there has been no restriction upon the rates of that company, and in 1890,

the average rate per ton per mile charged was 9 mills and $\frac{8}{100}$ less than one cent, and since then has been about one cent per ton per mile.

From this statement it would appear that no legislation was necessary to reduce the rates of transportation. The general laws of trade and competition have proved much more effective for that purpose.

The Munn case arose under a statute of Illinois, which fixed the rate for elevating wheat in the city of Chicago at two cents per bushel. The price now, as fixed by competition and the laws of trade is only $\frac{3}{4}$ of a cent per bushel. An examination of the statistics connected with this matter throughout the country will show similar reductions in charges resulting wholly from the laws of trade and competition without government aid.

These results from the natural course of business are much more satisfactory and beneficial to the public than any benefits that could be expected from the governmental regulation upon the subject.

THE STATUTORY REGULATION OF TRANSPORTATION AND ITS RESULTS.

ALFRED G. SAFFORD, LAW DEPARTMENT, INTERSTATE COMMERCE COMMISSION.

The right of the supreme power in a state to regulate railroads and other instrumentalities of commerce is no longer an open question. It is no longer considered a doubtful exercise of the legislative authority to prescribe the rules by which commerce is to be governed; not only is this proposition universally recognized, but such regulation is generally considered to be a positive duty which the government, in a wise administration of its affairs, has no right to neglect.

Railways are public highways; they are instruments of commerce; the public have an interest in their use; they possess and operate franchises of a public character; the grants to them are in derogation of common right in the nature of exclusive privileges; more than this, they are governmental agencies affecting the public welfare, and for any one and all of these accumulated reasons they are, on the ground of public interest and necessity, subject to legislative control.

The construction and operation of railways is not merely a private speculation on the part of those individuals who may have invested their money in their creation. They exist and are operated only as forming a part of the government itself. Natural persons, who are not strictly officers of government, prescribe the rules governing the details of railroad management, but in so doing they are only engaged in the administration of one of the functions of government. This fundamental doctrine, underlying the whole subject of railroad construction and operation, has been stated by the Supreme Court of the United

States with such succinctness and clearness as to warrant a reproduction of the language.

In *Olcott vs. Supervisors*, 16 Wallace 694-5, the court say:

"That railroads, though constructed by private corporations and owned by them, are public highways has been the doctrine of nearly all the courts ever since such conveniences for passage and transportation have had any existence, . . . whether the use of a railroad is a public or a private one depends in no measure upon the question of who constructed it, or who owns it. It has never been considered a matter of any importance that the road was built by the agency of a private corporation. No matter who owns it, or who is the agent, *the function performed is that of the state.* Though the ownership is *private* the use is *public.*"

And in *Railroad Company vs. Maryland*, 21 Wallace 471, the doctrine is again asserted in the following language:

"This unlimited right of the state to charge, or authorize others to charge, toll, freight, or fare for transportation on its roads, canals and railroads, arises from the simple fact *that they are its own works*, or constructed under its authority—it gives them being."

It thus being the duty of government to administer this important function of its organization, namely, the providing of improved public highways which its inhabitants may use as a means of facilitating commerce, and it having been determined, so far in the history of our own country at least, that the administration ought not be confided to government officials, and that the best management requires private ownership and unofficial direction, and having delegated a portion of its sovereignty to the administration of a corporation created by it for that purpose, it is beyond dispute that the delegated authority should be so restrained and guided by discreet legislation as to ensure to the whole people the very best possible results. Therefore I insist that a government not only may, but it should, provide for a statutory regulation of railroads, understanding that the kind of regulation mentioned in the subject was not intended to refer to those statutes which states under the "police power," so-called, may enact and which extend to all regulations affecting the health, good order, morals, peace and safety of society. The "regulation" here to be considered is of another sort, and refers to statutes which have for their object the placing of the facilities of transportation within the reach of all, affording to each person an equal right to the advantages of transportation, by ensuring the imposition of just, reasonable, equal, non-discriminatory and stable charges.

Such charges should be "*just and reasonable.*" That is to say, they should be neither too high nor too low. A railroad is often a monopoly. It controls the only avenues of traffic. Left to itself, by the imposition of too high a tariff, it could demand more than a fair rate for the business, and the community it serves be powerless to resist its merciless demands; or by making rates too low, it might throttle a weaker rival and strangle the life out of a competitor deriving its right to participate in the business from the same governmental source. Therefore rates must be *just and reasonable*, not only to the persons who employ it as an instrumentality of commerce, but also as to all other persons and carriers, whose right to exist and do business free from unreasonable and unjustifiable attacks ought to be protected by the same laws which protect, or are designed to protect, the actual patron.

Rates should also be "*equal*" to each person requiring a like and contemporaneous service. It would seem to be unnecessary, at first sight, to make a special provision, in laws of this character, that rates

should possess this element of equality, added to the other provision that they should be just and reasonable. But the necessity arises because some of the courts, by a process of reasoning which is as mysterious as it is unconvincing, have held that a carrier may charge a greater sum to one person than to another for a like and contemporaneous service, without making an "unjust" discrimination in the sense that the word "unjust" is used in such statutes.

Rates should also be "*non-discriminatory*." Of course if there was a provision in such statutes for just and reasonable rates, and a requirement that they should be equal for a substantially similar service, there would be no need of a regulation against discrimination as to shippers of the same articles between the same points. But such regulations are necessary in order to protect different localities and different businesses. Each community is entitled to all the benefits of its geographical location, and laws in regulation of commerce ought to provide for the protection of those natural and other advantages which are peculiar to each situation.

Again, rates ought to be stable. They should not be subject to sudden changes or temporary fluctuations. A change in rate charge should not go into operation until each patron shall have an opportunity to take advantage of it, and shape his particular business to the change of circumstances.

I have thus gone over, in a general way, the underlying principles which, it is agreed on all sides, should be protected and put into practical operation by laws regulating railroad traffic. The question thereupon arises as to what method of legislation is the best to bring about the desired result. Practical experience has determined that it is quite useless to enact a statute which begins and ends with a declaration that rates shall be characterized by any or all of the above specified qualifications, and leave the practical enforcement of such regulation to the ordinary machinery of the government. The statute books of the world show that legislators have oftentimes tried this experiment, but such laws have always been honored more by the breach than by the observance.

The ordinary machinery of the government, its executive and judicial branches, are not suited to a practical administration of such laws. The courts are overwhelmed in these days with the thousand and one subjects of litigation, and their processes are necessarily too much delayed to apply the remedy of the laws in matters of this kind in such a way as to prevent the evil or advance the remedy. The wonderful development of railroad facilities during the past generation, which have become so general as to enter into almost every transaction of business or social life, has created a situation which may well demand of government a separate and distinct department, to the administration of which may wisely be confided the carrying into effect of general principles and distributing the charge for transportation services, which is in a certain measure a tax upon the people, with exact impartiality.

In some countries railroads are constructed and operated by the state, but such ownership and control is only adapted, if at all, to peculiar conditions, and in this country where the government is formed upon the confederation of a multiplicity of sovereignties, such ownership and control would not be compatible with the best service. The

magnitude of the operation of all the railroads of this country, if aggregated into single ownership, would be beyond the power of the best administrative capacity. Rivalry and competition of the several lines, which in and of itself operates so largely to regulate and control the reasonableness of charges, would at once lose its controlling influence. Every rate between every place would have to be a matter of independent action. Such ownership and control is not at the present time advocated in this country by any careful student of the situation, and exists only in the imagination of discontented theorists.

But almost fifty years ago a plan was suggested—the statutory regulation of railroads by boards of commissioners—and since that time such regulation has been practiced, with more or less success, by various countries.

Not always have such boards been successful. The difficulty in this country of statutory regulation by the states, in view of the controlling force of the commercial clause in the constitution and the necessarily limited scope of such acts when put in force by a state, has materially lessened the salutary effect of such statutes; besides legislators have quite uniformly fallen into the error of making such laws inflexible in those particulars wherein they should have been elastic, such as the positive regulation of details, and weak in those particulars wherein they should have been strong, such as the powers given to the commissioners. Too often states have been disgraced by statutes nominally in regulation of railroads, but really a scheme of legalized petit larceny, such as the recent act of a state that all railroads should furnish all the members of the state legislature with free passes.

Such laws only serve to bring the law-making power into contempt. There have been many dismal failures in statutory regulation of railroads, and these failures have generally resulted from the ignoring of two elementary principles which ought to enter into every statute law, namely, simplicity and strength. Laws should be simple, easy to be understood and convenient of application, and should also have machinery of sufficient strength to put their provisions into practical operation.

Therefore it is that laws upon this subject should enact that rates and charges should be put into effect in accordance with general principles, broad and comprehensive enough to meet every situation, and as regulation by commission seems to be the only practical method of securing proper results, the underlying necessity of such regulation is to confine all matters of management and detail to the discretion of the board of commissioners; it goes without saying that that discretion ought not to be hampered or controlled by the attempted regulation of particular details and management in the law itself. It is therefore a matter of astonishment and concern to find in all laws authorizing this sort of regulation sections prohibitive of certain details of management from which the discretion of the board is withdrawn.

This defect is well illustrated by the act of February, 1887, commonly known as the Interstate Commerce law. Section one provides that rates shall be "just and reasonable." Section two, that they shall be "equal." Section three, that they shall be "non-discriminatory." Section six, that they shall be "stable and uniform." These sections embody all the elements which are necessary to the impartial

administration of railroad properties, but on account of the different circumstances and conditions surrounding the question of railroad transportation, the details of applying these elementary principles must necessarily vary. The legislators cannot foresee and cannot provide for exact regulation of all these details, but they can provide a board of commissioners to whose controlling discretion such matters may be confided, and it is quite necessary that in such a statute, ample plenary power should be given to the administrative board.

Referring again to the interstate commerce law, the third section, which prohibits discriminations, was copied from the English railway laws, where it had received a definite construction, and the English courts had construed this section which was incorporated into our law as being prohibitive of the greater charge for the shorter haul. (*Budd vs. London & N. W. R. Co.*, 36 L. T. N. S. 802. *Denaby Main Colliery Co. vs. Manchester S. & L. R. Co.*, 3 N. & M. 426).

By repeated decisions of our Supreme Court, where a statute of our country is copied from an English statute, and the statute there had received a judicial construction before its passage here, that judicial construction is held to be incorporated into our legislation.

In this view of the case, of what practical use is the celebrated fourth, the "long and short haul," section of the law, which was intended as a prohibition of such charges, unless, in a special case, the commission might relieve the carrier from this otherwise absolute control? It is an instance of unnecessary legislation, and harmful, because the singling out of a single instance of discrimination, and prohibiting it, implies that the preceding third section would fail to reach all cases of discrimination, so that, instead of strengthening the prohibitions of the statute, it withdraws from it a portion of its vitality.

So too, the fifth section of the interstate law, which prohibits all of a certain class of agreements between carriers, is another weak attempt to regulate details. Such a sweeping prohibition has no place in the statute, unless every agreement of the kind prohibited was opposed to the best service.

I do not believe that the practice, so common in this country at one time, of charging a greater rate for the shorter haul should be generally permitted, but there are occasional instances, as has been very frequently pointed out by writers upon this subject and by practically disinterested persons identified with the management of railroad property, where such rates should be permitted. I do not believe that, as a general rule, contracts looking to the destruction of competition should be permitted, but it is a matter of common experience that there are occasional instances when the existence of the weaker lines and the best service depends upon peace rather than war. I would not take away from the statute a single vital word which would impair the carrying into practical effect of the general principles I have specified, but I firmly believe that the present law would be more practical and more effective if it contained only the provisions of the first, second, third and sixth sections, together with the other administrative features which seem to have been wisely enacted in aid thereof. I do not think that sufficient authority and control have been given to the board of commissioners authorized by it. An ideal law, in my estimation, would be one fashioned after or perhaps identical with the present law as to

all principles which, from their nature, must enter into every transaction which would be silent as to prohibition in special cases, and which would give to the commission an authority so plenary that through their discretion they could put all of the necessary fundamental principles into immediate practice.

The present act to regulate commerce was practically the first attempt on the part of Congress to attempt the regulation of interstate carriage. It would have been surprising if it had embraced all necessary subjects and had applied to each an unfailing remedy, and the legislative department deserves the highest commendation for having taken so long a step in the right direction, and the executive department has reason to be congratulated upon the wise selection of the various commissioners to whom the law has confided its administration. I only contend that to give the best possible direction to the duty of legislative control which the situation exacts from the supreme power in the state, the discretion of the commission should be unhampered and uncontrolled by special statutory prohibitions, and their determinations should be given a character and dignity corresponding to the character and dignity of the decisions of other legislative courts.

The result of my argument on this subject is, that amidst such an infinite diversity of circumstances and conditions railroads ought not to be hampered by prohibition or enactments regulating the details according to the momentary caprice or fancy of the law-making power, but the law should leave those details and their management to the wise discretion of the persons it designates as administrative officers, giving to such persons paramount and immediate authority, and so organizing the administrative board as to bring it into close relationship to the subject, and designed upon a plan which should be comprehensive and readily accessible to the public. It should be as free and as easy to reach as are the courts to whom are confided the administration of other departments of the law.

Such a law would necessarily require at least one commissioner in each judicial district of the circuit courts of the United States, machinery for speedy hearing and determination, and an appeal to a revisory board at the seat of government. The limits of endurable discussion do not permit me to enter into all the details of such an organization of commerce courts, while the question of just what would be for the best is quite complex and difficult. I do not consider the difficulties to be insurmountable. Having the organization and practice of the courts for a century or more as an example a satisfactory system could doubtless be evolved.

Regulation, to give the best results, should be certain and thorough. If it should be made an integral part of our judiciary system, I have no doubt expenses of management would be reduced to a minimum, the tax of the cost of transportation would be levied with even-handed impartiality, ruinous competition would be unknown, and the railroads of our country would become, up to the full measure of their capacity, factors in a new era of commercial activity and consequent national prosperity.

ECONOMIC LAWS GOVERNING RAILWAY OPERATIONS.

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NORTH-WESTERN RAILWAY COMPANY.

[Mr. Kirkman is also known as the author of many standard works on railway administration].

The office of a railroad is to facilitate travel and to bring producer and consumer together. This is accomplished by the use of such means as the arts of man have placed at its disposal, supplemented by rates that come within the means of the consumer, and yet afford a margin of profit to producer and carrier.

The appliances of railroads every one may study. They are such as the traffic requires. But the principles upon which rates are based are not so well understood. A correct and general understanding of them is, however, necessary to the prevention of grave misunderstandings between public and carrier. Freedom of trade, ability of consumers to buy what they need, inducement to the producer to create, are all dependent upon a proper application of the rate principle by railroads. While no other subject connected with trade at the present time is of equal importance, it is not generally understood. The principles governing it are, however, very simple. They may be briefly summarized as follows :

Rates must be uniform wherever conditions are alike.

They must be just and reasonable.

But in determining what is reasonable, all the problems of a traffic must be considered.

A carrier's ability to perform a particular act embraces all his acts.

He can handle designated articles only so long as he handles other articles.

Particular rates cannot, therefore, be considered apart.

Rates must be founded on economic laws.

They are based on what the article will bear, and are not, consequently, equally productive. Further than this, particular interests cannot be conserved at the expense of others.

Rates must be such as to stimulate trade.

They must also be generally remunerative.

It results from the application of these laws that traffic that is not productive dies.

Competition is a potential factor in determining rates, and in the case of railroads, is general.

Thus, the facility and cheapness with which wheat may be moved from India to Liverpool affects the rate on wheat in every quarter of the globe. It also affects the rate on substitutes for wheat, such as rye, barley, and so on.

In so far as this is the case, competition among railways is not,

therefore, dependent upon the presence of neighboring lines or merely local influences.

A parallel line, or multiplicity of local competitive interests, while valuable, would not be enough to maintain equitable conditions. They must be supplemented by others of a general nature, embracing the markets of the world and the diversified carriage of mankind by land and water.

Richness of soil, facilities of production, price of labor, and the rate for carriage from point of production to the place of consumption, influence the charges of carriers in the most distant quarters of the globe.

It is no exaggeration to say that the sources of competition among carriers are as numerous as the divergent interests of trade. Because of this, they are self-regulative. Errors of judgment and sins of omission and commission are selfcorrective.

Competition is not the "life" of trade, but its balance wheel; its regulator. Trade cannot be vigorous or healthy where it does not exist. Supply and demand are the "life" of trade.

Love of gain and the necessities of mankind will keep trade alive where there is no competition.

Competition sweeps away, or reduces to their proper proportions, enterprises that labor under disadvantages, or cannot produce as cheaply as others.

It is in no part of the duty of carriers, any more than private individuals, to keep alive unproductive industries or those requiring constant succor. To do so would be to make one portion of the community bear, permanently, the burdens of another.

Wherever competition prevails, the fittest survive. Men are stimulated to continued effort. It develops inventive genius, economical methods, keeps alive interests, leads men to personal sacrifices.

Competition, like every other blessing, has its excesses. It is not an unmixed good. Its advantages, however, greatly overbalance its disadvantages.

Its hardships are mollified by the devices of men. In every country save the United States, they are mitigated, in the case of railroads, by the use of pools and similar devices.¹

Local competition at common points enforces special rates. It supplements the general and universal competition railroads labor under, and therefore, adds to its acuteness. The privilege of discriminating in such cases is a necessary and inherent one. But when such discrimination cannot be regulated by concurrent interests, the traffic must be abandoned or made the source of harassment to both the carrier and the community.

Railways in the United States have suffered greatly from local competitive effort. While encouraged to compete with each other, they are denied the right to mollify such strife.

Local competition impossible of regulation injures more than it benefits.

Wherever railway construction is free, the owners of railways should be permitted to regulate local competition. Laws prohibiting it

¹ If merchants were denied the right to regulate their competition, as railroads are in the United States, they would quickly be ruined and commerce destroyed.

are destructive. The device of railways for preventing undue competition in such cases is pooling. Where it is prohibited, consolidation of rival interests will follow if the adoption of some other and equally effective device is impossible.¹

Competition between local carriers is beneficial in many ways aside from reduced rates. It insures better facilities, superior warehouses, yards and grounds, adequate equipment, and abundant provision for the convenience, safety and comfort of the traveling public.

Local competition that results in abnormal rates is to be deplored.

It is only the natural markets of the world, conjointly with carriers, that afford self-regulative effort. They are based on supply and demand, at once universal, salutary and wise. The laws that govern them are so conservative and far reaching as to prevent injustice upon the part of local carriers.

The rates of railroads, being regulated by competitive carriers and markets, do not invite extraneous attention. The objection to laws that interfere with the economic action of trade is that they must be so liberal as to be inoperative, or if agrarian in nature, destroy the enterprise they are designed to regulate, and at the same time cripple all industries dependent upon it. Thus, laws limiting the income of properties place the maximum earnings at so high a point that they are inoperative, or at so low a figure that they are evaded or the service degraded, while capital carefully avoids further investment in industries thus crippled.

In the practical operation of railroads such rates are made as the traffic will bear. This rule is observed in detail. It is probable that there is more or less business upon which there is little or no profit; perhaps momentarily a loss. If on the whole the revenue thus arrived at affords a fair return on the capital invested, the property prospers; if on the other hand the revenue is not sufficient, it languishes—is thrown into the hands of a receiver, and thus a readjustment of fixed charges is made to conform to the earnings capacity of the road. The burden of this readjustment does not fall alone on the owners of the railroad; all other securities feel the effect of the loss of credit, and private industries everywhere suffer by reason of the distress created. So that in disaster as in prosperity, solidarity of trade is observed, and in crippling one industry all other industries suffer. Because of this law it is a misfortune to a community to have a railroad constructed that will not prove productive. An unprofitable railroad casts a shadow over every surrounding industry. Private ownership and control of railroads, being governed by the economic conditions of trade, must conform in every respect to its laws. Safety of property and prospect of gain enforce this condition.

Government ownership or control is desirable only so far as it can conform thereto, only so far as it is free to adapt itself from hour to hour to the ever changing vicissitudes of trade. It must possess

¹ In considering the question of pools, it should be remembered that they have never been adopted in any country except with reluctance by railway owners and managers, and only after their necessity and value became apparent. No railway owner or manager will willingly circumscribe his action by agreement with competitors, except when imperatively necessary. This was the experience was the experience with pools in the United States during the short period in which they were permitted. They were never entered into by railroads except with reluctance, and only when their presence became necessary in order to protect the general interests of the community.

both the knowledge and disposition to meet these requirements. Automatic action, such as that attendant upon the enforcement of taxes and the collection of custom dues, is not sufficient. Nor can it shield itself behind formulas or adroitly conceived methods. It must be both creative and adaptive. Moreover, in the conduct of business only the wants of the latter must be considered. It must not be hampered by questions of public policy or administrative needs. This unselfishness and adaptability and freedom we know to be impossible to governments, and in so far as this is so, their management fails. Governments, however, have a necessary and beneficent office to fulfill. That of a supervisory force; the office of enquirer and judge; the duty of allaying unjust irritation; the correction of misapprehensions; the settlement of disputes; the correction of acts of injustice and oppression whether originating with the public or the carrier.

Superiority of private control over government right is due to the superior incentive that animates the former; to the desire of gain and the fear of loss. The care and productiveness of property require that it should be constantly adapted to ever varying needs; that its management should be far-seeing, prudential and wise. Government control is lacking in immediate concern. It is mechanical where it should be initiative; indifferent where it should have the fear of loss before its eyes; extravagant where it should be economical.

Superiority of private management over that of government, it is proper to say, is not due to any natural superiority of the employes of the former over the latter, but to the fact that the former are impregnated with the spirit of the owner, are subject to his commanding presence and exacting methods.

Mankind is interested in having railroads operated as cheaply as possible, because traffic that does not pay the cost of operation cannot be carried on.

High rates restrict production and heighten the cost to the consumer.

Their effect is, therefore, to restrict the volume and profitableness of business. They also increase the price of food and clothing, lower the wages of labor and lessen demand for the latter.

In so far as government control of railroads is more expensive than private management, and it is always more expensive, all these manifold evils are increased. They are felt alike by the farmer, manufacturer, merchant and laborer.¹

The science of transportation is said to be the contribution of America to political economy. It was developed under a policy of governmental abstention. Its further elucidation is dependent upon a like policy. Its wisdom has been demonstrated in widespread productiveness; in growth of population and wealth; in unprecedented increase of agriculture, manufacture and mining. There can be no question of its wisdom, just as there can be no surer evidence of the efficiency of carriers than in the constant and increasing demand for their service; in the disposition and ability of the people to travel, and in their need for carriers in other directions.

¹ The general principles here laid down for the government of railroads were long observed in the United States. Under them its railroad system became the greatest in the world in magnitude, in effectiveness of operation and cheapness of rates.

The railroads of the United States and England are the most efficient in the world. This is due to the presence of the owner; to his genius and authority; to his watchfulness and supervisory care. The value of such service to those who live in the realm of theory, or have no practical acquaintance with business, cannot be understood. With them mechanical effort and formulas have the effect of vital forces. They believe government employes to be as capable as those who work under the immediate eye of a jealous and exacting owner, that the same genius lodges in the clerk that is to be found in the principal.¹

The principles and methods that apply generally to manufacturers apply to carriers. They are to be measured by normal standards only. In time of peace carriers should be assured protection and impartial treatment. In time of war other and greater interests may intervene; such occasions are exceptional and in nowise affect the general principles, that owners shall be left free to construct, to own and to manage. Mutuality of interests will prevent the privilege being abused.²

The operations of carriers are impartial and equitable. Unjust discrimination is impossible, because retro-active. Instances of injustice will occur, but will be isolated, infrequent and temporary. Such acts, if not self-corrective, would destroy trade.

Wherever an injustice is known to exist it should be brought to the attention of the government and corrected. But a drag should not be put on the commerce of the world because of a special or petty practice.

The dream of carriers is a stable service. For railroads the aim is trains that are safe, ample, rapid and remunerative. These objects are impossible if a service is not remunerative, and no service can be remunerative if a community is not prosperous. The affairs of the two are, therefore, mutual and reciprocal.

The interests in which railroads participate are not one-sided. Every one must prosper—the producer, middleman, carrier and consumer. America has been the utopia of railroads. Its low rates, great commercial prosperity and colossal development, the result of government abstention, teach the lesson that the less such properties are interfered with by governments the better. Intervention through commissioners may be valuable, but when made to assume the initiative, when

¹ Thus a writer says: "It is curious how men still argue that man, in running a railroad, if left alone, will act according to natural law, but that man, in running a government, is some way, freed from the operation of that natural law, and can work out all the viciousness that is in him." —*Sidney Herbert*. Observation teaches that the prosperity of the man who runs a railroad is bound up in the prosperity of the community, while the man who runs a government is responsible, only, in a devious way, to a shadowy principal—the people. That there are exceptions to this rule, due to the presence of exceptionally able and conscientious officials, does not render it the less true.

² The interstate commerce commission of the United States bears general testimony to this fact. It says:

"It is freely conceded that many practices of the carriers and many of the principles adopted by them in the establishment of tariffs and classifications which seem on first blush to be purely arbitrary and unjust, are found on examination to be perfectly just, and founded on the strongest reasons of public expediency and commercial necessity. It is indeed almost wonderful, considering the arbitrary powers which the carriers (so far as mere common-law restraints are concerned) possess in the matter of rate-making, that the actual exercise of arbitrary and oppressive action is so comparatively rare. The explanation is that, while the restraints of the common law count for little or nothing, the operation of economic and commercial principles is constantly exerting a pressure which cannot be resisted, in the actual as well as the relative adjustment of tariff charges." —Suggestions of the Interstate Commerce Commission in reply to Arguments on Senate Bill 892, March 16, 1892.

made to interfere with natural laws, when it assumes to supplant private endeavor and interest, it is surcharged with harm.

The dream of governmental regulation of railroads is a return to the practices of mediæval times, when governors fixed the price of bread and meat. The loss of confidence, falling off in production, and enhancement of prices and general hardship that followed then, will follow today from a like cause.

The advantages of active governmental interference are fictitious and uncertain. Such intervention is unnecessary. Railroads are self-governed, because the commercial interests they serve demand responsive effort. Railway rates may be too low; they cannot be too high. If too high, they destroy the business they seek to foster. Like the railways of which they are the barometer, they must conform to actual needs of trade. Great or widespread commercial prosperity is impossible where they do not do this. They are the connecting link leading the producer to the consumer, and when economically applied, as they must be in the actual affairs of business, stimulate and protect every possible interest of the community.

II.

RAILWAY MANAGEMENT AND OPERATION.

THE EFFECT OF COMPETITION UPON RAILWAY CON- STRUCTION AND OPERATION.

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In tracing the results of competition in human affairs a broad distinction is obvious, without noting which no generalization can be safely made. A difference clearly exists between competition which is healthy and competition which is excessive. Healthy competition produces results which may be called primary or immediate; excessive competition induces another series of results of a radically different nature, which may be termed secondary or ultimate. The primary and the secondary effects of competition are radically diverse.

Competition, in its earlier stages, develops energy, stimulates industry, excites invention, increases production, promotes distribution, reduces cost, controls rapacity and overthrows monopoly. Its first fruits are a blessing to the world. It gives the laboring man freedom to seek employment where he will, and it throws open every avenue of enterprise to the capitalist and the entrepreneur. It drives the white wings of commerce and turns the grimy wheels of trade. It revives the worn-out soil of effete countries and irrigates the deserts of new continents. In this aspect it is properly called the life of trade, for it replaces torpor by activity and routine by enterprise.

But another set of results arises when competition is pushed too far. Its ultimate effects may be as disastrous as its primary effects are beneficial. In its essential essence competition is strife. Strife is undue measure is warfare; and war is the parent of misery and death. Excessive competition even destroys the very agencies through which it is conducted; and with their extinction competition itself necessarily disappears.

If a concrete example is required to make my meaning plain a very simple illustration must suffice. Suppose a rural village with a country inn. The landlord is of course a lover of horses and keeps two or three which he loans to his neighbors for hire. Presently a stranger

enters the town and opens a livery across the way. Competition begins. The hotel keeper wakes up to the possibilities of improvement. He buys a better horse,—probably two or three. He adds new wagons, carriages, and perhaps a hearse. He conforms his prices to those announced by his rival. Business is stimulated. The town is better served, and the profits of both are satisfactory.

To this point the results of competition are advantageous to every interest. But presently a smoldering feeling of hostility, or a desire to do even better than hitherto, induces one or the other to inject into their healthy competition an element of bitterness, and the prices are cut once more. Retaliation follows, and the earnings of both become less than the expenses of the business. A warfare has begun which is no longer an advantage to either, but a loss to both. The strife becomes personal and ruinous. The community enjoys the scene, and perceives only new benefits arising from what it calls free and unrestricted competition. But the end is inevitable; one or the other contestants must give way. Whether it be a withdrawal from business, a sheriff's sale, a private deal by which one buys out the other, or possibly a partnership, the result is the same. Competition is terminated. It has destroyed itself and wholly disappears. The natural result of excessive competition is the ruin of one of the competitors—possibly of both; unless this result can be warded off, the primary benefits of competition are lost and the secondary result is a reversion to the conditions which existed before the competition began.

This picture may be reproduced in every branch of industry. Miners, manufacturers, carriers, merchants,—all alike for a time find prosperity in the activity which competition brings, but if they compete to the end it is the survival of the fittest; meaning always the fittest for the contest; not necessarily the fittest to survive. Competition is a useful servant, but a hard master. In this it does not differ from other industrial agencies which are of value when in harness and which work harm when uncontrolled. Steam is gathered in boilers of enormous strength and does its work through cylinders of steel; if the boiler explodes, or the cylinder head blows out, the engine is a wreck. Unless electricity is insulated, it spreads destruction. The same is true of moral forces. Liberty without the safeguards of education presently becomes license. Law uncontrolled by constitutional principles or by codes will pass by easy stages into despotism. Every good thing is converted into a power for evil by excess. Too much eating is gluttony. Too much drinking is intemperance. Too much religious zeal is fanaticism. Exercise of the body and even of the mind, if unduly prolonged, will induce physical or mental prostration.

So of competition. Its primary effect is that of blessing. Its secondary result is only bane. Until the public learns that there is such a thing as unhealthy competition, it will fail to treat this subject with either logic or good sense. Free and unrestricted competition is a crude and a dangerous war cry. It refuses to recognize actual conditions. It observes only immediate results, and it ignores ultimate effects which are as natural as the rising and setting of the sun, or as the procession of the seasons.

We cannot close our eyes to the fact that in spite of all the clamor of the present day for free and unrestricted competition there was

never a time when so much was done as now in the way of curbing and repressing its extravagances. Laws against industrial combinations are passed only to be evaded and forgotten. Agreements upon prices, upon business methods, upon the amount of production, upon territory of sale, are found in every industry. They have increased with the natural increase, following the necessities of the age. The most stringent agreements are found in organizations of laboring men, who not only go to the full limits of their legal rights, but frequently overstep them in their effort to exclude free and unrestricted competition from their various vocations. Fire insurance could not be carried on except by strict rules against the cutting of premium rates. Newspapers agree upon their advertising rates and their wages scale. Brokers fix their commissions by agreement, and maintain them by concerted action. The rules of the board of trade are enforced with severity. In every line of business methods of this nature are adopted and they are necessary in order to maintain the advantages of competition to the public as a whole. To seek to prevent them by law is as futile as it was for King Canute to legislate against the tides. Unless undue and unreasonable competition can in some manner be kept in check, the weaker agencies will surely be forced to leave the field to the stronger or will be absorbed. In a word, the secondary result of competition is monopoly. Excessive competition logically can have no other end.

In order that the secondary results of competition may be avoided while its primary results are preserved, there has lately been developed a spirit of coöperation between competitors; a phrase used by the president of the World's Congress in his opening address, and which he employed to denote mutual arrangements taking various forms, but all directed to the avoidance of unhealthy competition. This coöperation does not, as is often alleged, suppress competition; on the contrary it preserves it. Until recently the logical result of competition was either an actual combination of the competitors, or the extinction of the weaker. Both these results are now commonly forestalled by coöperative agreements, under which the independent competitive agencies are not extinguished; these agreements may touch only a single point of the strife, or may have broader issues; they are always less than actual consolidation: they are subject to condemnation only when they result in extinction; and in that event they either fall of their own weight or stimulate the appearance of new agencies to oppose them.

There is no novelty in these thoughts, which nevertheless need statement and restatement, lest their truth be forgotten. Listen for a moment to the words of thoughtful jurists and publicists, who have conscientiously looked the question in the face. I quote briefly, giving the substance and usually the very language of the opinions expressed.

The Court of Appeals of the State of New York: "I do not think that competition is invariably a public benefaction; for it may be carried to such a degree as to become a public evil."

The Supreme Court of Wisconsin: "I believe universal observation will attest that for the last quarter of a century competition in trade has caused more individual disasters, if not more public injury than the want of competition."

The Supreme Court of Massachusetts: "Instead of an injury to the public the community may receive a benefit from such procedure (referring to an agreement for the regulation of competition) as it will go to prevent the trades being overdone and so being profitable to none."

The Supreme Court of Missouri: "A combination in a trade which has become ruinous from competition to raise prices to a fair and reasonable point, is not invalid."

Vice-Chancellor Wood of England: "It is a mistaken notion that the public is benefited by pitting two railway companies against each other until one is ruined, the result being at last to raise the fares to the highest possible standard."

Lord Bramwell of England; approved by the House of Lords: "It does seem strange that to enforce 'freedom' of trade the law should punish those who make a perfectly honest agreement with the belief that it is fairly required for their protection."

Judge Cooley of Michigan: "It will appear from an examination that in all of the cases on the subject of contracts in restraint of trade the legality of bargaining to limit competition, when it is kept within the bounds of reasonable protection, is either assumed or expressly affirmed."

Professor Hadley of Yale College: "We can no longer hold that free competition is an automatic regulator of prices and that combination is economically wrong."

Beach on Private Corporations: "Excessive competition may sometimes result in actual injury to the public, and anti-competitive contracts to avert personal ruin may be perfectly reasonable."

Patterson on Restriction of Trade: "At the present time excessive competition is found as injurious to the public interests as the absence of competition."

This weight of authority, and more which could readily be cited, shows the prevalent notion that unrestricted competition is necessarily a public benefit, to be fallacious. On the contrary, while competition in its primary effects is of priceless value, it becomes destructive and disastrous when carried to excess.

As a practical proposition the general subject of competition needs no legislation. In this matter, as in others, there is an attempt to govern the world too much. Competition is a natural force; and like other forces of nature will do its best to work when undisturbed. Mankind may be trusted to regulate its excesses, and to mitigate its undue severity, by voluntary coöperative action among the competitors themselves.

The legislature of Illinois has recently passed a bill, which the governor has this week approved, designed to suppress agreements by which competitors seek to temper the violence of their competition. This law, known as "the Berry law," is deliberately and grossly discriminative, being so drawn as not to include combinations for the protection of personal labor, or professional services. Nor does it include insurance premiums, brokers' commissions, etc., being limited in its scope to the manufacture, transportation and sale of merchandise, produce and commodities, agricultural products in the hands of producers being specially excepted. It commences with a new definition of the word "trust," which is not a true definition, having little relation to the

legal meaning of the word, but which makes a statutory crime out of its slang meaning. Among other things the law says that any agreement between makers and sellers that the sellers shall not sell below a list, card, or common standard figure is the act of a "trust"; and also that a trust includes any combination to fix any standard or figure upon any article or commodity of merchandise whereby its price to the public shall in any manner be controlled or established. The theory of its framers evidently is this; that because harm to the public—that is, to consumers—has been thought to result from certain highly monopolistic combinations, such as those relating to the manufacture and sale of oil, binding twine, hard coal, etc., the legislature of Illinois should protect purchasers at the expense of producers and sellers by forbidding all combinations of that nature, whatever their object or effect may be. The legislature has overlooked the fact that freedom of contract is guaranteed in every American constitution, and that no legislature can interfere with that freedom save in those exceptional cases where the results are clearly injurious to the public. In other words, while extortion may be restrained, agreements of federation, like other lawful agreements, are under constitutional protection until proved to result in extortion.

I am not among those who believe that any legislation on this subject is necessary or wise; preferring to rely, for the correction of the temporary evils that are occasionally alleged to arise from combinations of capital and skill, upon the natural forces of competition which in this country are far stronger and more efficient than any law that can be devised. But if law must interfere, it can only properly deal with developed evils. Under our form of government it cannot interfere with otherwise lawful arrangements upon the mere possibility that evil may ensue.

The special idiocy of the Berry bill, however, lies in this that it does not discriminate between combination and coöperation, but denounces both alike; entirely ignoring the fact that they are of directly opposite tendencies; failing to perceive that the purpose and effect of trade agreements among competitors is to avoid actual combination, by fending off disastrous competition which otherwise would have no other result. By coöperating to maintain reasonable prices, competitors preserve their individual competitive existence, which is in constant danger of extinguishment through their inability to resist the pressure of the times. The forms of purchase or lease, or the legal sale of a bankrupt's effects, represent the natural tendencies which coöperation forestalls; thus preserving the agencies of competition intact and enabling each to secure such reasonable compensation as shall prevent the sacrifice of individual existence. A strict construction of the bill might prevent the formation of a partnership, or the purchase or lease by one competitor of the other's business, or a judicial sale by a sheriff or receiver; such, however, cannot have been the purpose of the legislature. The proper title of the bill would be: An act to foster monopolies by driving into bankruptcy all the weaker manufacturers and merchants of Illinois.

Coming now to the particular subject which I was invited to discuss, and keeping in mind the distinction which I have endeavored to make

clear, there is no difficulty in answering the questions suggested by my theme.

The primary effect of competition upon railway construction and railway operation is unquestionably valuable. The secondary effect is as unquestionably disastrous. The general principles governing the subject apply with full force to this particular industry.

I. RAILWAY CONSTRUCTION.

The construction of railways may be carried on by private enterprise or by the state. To leave the construction of railways to private enterprise involves the employment of competition as a stimulant; to relegate the building of railways wholly to the state implies the abandonment of competition and the employment in its place of a unified scheme which shall treat the subject as a totality. In the United States the competitive method has been employed in full vigor. The course pursued in other nations will be rapidly sketched.

Looking first at our own country, we find that although some of the states once entered upon the construction of transportation routes, for example the rail and canal line proposed by Pennsylvania from Philadelphia to Pittsburgh, the state railways of Michigan, Indiana and Georgia, the North Cross railway of Illinois, and the Hoosac Tunnel with its approaches in Massachusetts, these undertakings were all sooner or later abandoned. Contributions of money by municipalities have been customarily represented by corresponding securities of the corporation, either stock or mortgage bonds. The railways of the United States have been substantially constructed and are now altogether operated by private capital and as private enterprises.

Not only have charters for this purpose been freely granted by more than forty different legislatures, including Congress, but in the most of the states and territories general, laws have been passed under which the building and management of railways have been made as free as the engaging in any other business requiring large capital. From three to thirteen men may incorporate themselves by the simple process of filing a signed certificate, and having done this the company may condemn any property by payment of its appraised value. Having acquired a right of way, it may engage in the business of transportation as fast as its rails are laid. It has also a right to connect with existing lines at all junction points, upon equal terms. The result of this system has been a most marvelous development of railway lines. Its primary effect has in many ways been beneficial. Without imposing burdens upon the states or the nation, this vast work has gone on, accumulating an aggregate capitalization of about ten billions of dollars, resulting in the building and equipping of nearly one hundred and seventy thousand miles of railroad of single, double and quadruple track, and with terminals of great value at all important points. It is the opinion of experts that this property could not be reproduced today for the amount at which it stands charged on the books of the several thousand corporations which have done the work. The freedom allowed in the construction of railways in the United States has provided ample transportation service for thickly settled regions, and has made possible the habitation of remote and apparently barren districts; cities have been developed infinitely; others have been called into

being,—some of them, like Denver, apparently out of the desert ; civilization has been spread abroad throughout the land.

Yet there is another side to the story. It will not do to claim that the American system of railway construction is the best that could be devised. A successful railroad excites the cupidity of observers, and new roads have at times been constructed not only to divide a profitable business which the old line was fully adequate to perform, but also as a species of legal blackmail through the necessity imposed of a purchase or a lease in order to prevent the older line from becoming unremunerative. This procedure results in a vast wastage of capital, serving no public use, and involving the necessity of earnings sufficient to forever support a duplicated investment. In this respect competition in railway construction in the United States has been much too free, and its secondary effects at times have been evil.

In England, while competition in railway building has been active the regulative principle has been applied that any new railway proposed must be shown to subserve some public interest not previously provided for. A similar useful principle has been adopted in Massachusetts ; and without doubt every state should provide a check of this character upon unrestrained competition in the construction of railway lines. With proper restraints against the granting of unnecessary railroad charters, it would seem that for countries where capital is abundant and enterprise is dominant the competitive rather than the governmental method is to be preferred as a means for supplying the adequate railway facilities which modern civilization demands.

It must not be forgotten, however, that in many countries there are not found these accumulations of money seeking immediate investment which are required in order to carry out works of this vast character. In such cases the government is the only agency through which such undertakings can be accomplished. This of itself accounts for the fact that in Russia and in many other countries few railway systems could have been built if their construction had been left to business competition solely. It is also undeniable that upon the continent of Europe usage and its traditions clearly indicated the government as the natural originating force in the development of transportation by rail. Moreover the requirements of armies in times of peace and war, have largely controlled the development of the European railway systems ; conditions to which this country is not subject, although military considerations have by no means been wholly absent from our neighbors on the north.

In France a comprehensive scheme of railway construction was early matured, under which roads were built by chartered companies, with large contributions from the government, to which the property was intended ultimately to revert. Changes in the general scheme have been made from time to time, the present basis being that of government ownership in a small district in the southwest, the remaining territory of the republic being distributed among six great railway companies which are guaranteed a minimum dividend that in this country would be considered large, the state sharing in the excess of profit above a fixed percentage as to each, and the companies providing capital for necessary new construction under an arrangement by which all their advances are to be gradually repaid ; so that the whole system ultimately is to become the property of the government. This

plan does not tend to the rapid increase of railway lines. Each company has a complete monopoly in its own district, there being no such thing as competition by either in the territory of the rest. The system has proved remunerative to the corporations, and the state has been able to exercise in many respects an efficient control over railway operations. But there can be little doubt that the development of railways in France would have proceeded much more rapidly if the avenues of private investment for their construction had been more widely opened.

In Germany, on the other hand, there was at first no attempt to lay out a general plan. When railway building had its inception the various states were in great measure independent and followed differing policies. There were some state roads and more roads of private ownership, and considerable freedom in their construction was apparent. Of late, however, a general absorption of railway ownership in the state has been in progress, through the purchasing of private lines which made it for the interest of their owners to sell, until Prussia has now become the leading exemplar of state-owned railroads. The original construction of the roads, however, was largely through the agency of private corporations and under the influence of competition upon private enterprise.

In Belgium the state began the building of railroads at an early day. Private companies were permitted to build lines that the government did not see fit to undertake, and about 1850 the state suspended the construction of new roads. After that time the work of enlarging the system went on very rapidly through a violent competition among private companies. In later years many of the lines so built were purchased by the government, until at the present time it owns much the larger part of all. The development of the system was influenced by competition until it became excessive and, after considerable harm had been worked, was brought within control.

Railway building in Italy commenced when the various states were small, and the lines at first were not only disconnected, but isolated. After the consolidation of the government the ownership of the roads was acquired by it; but after several years of state management it was considered expedient to turn them over to private hands. Two great companies were organized, each controlling a system throughout the length of the kingdom, each having one trunk line and many branches, and both reaching most of the principal cities. This arrangement has placed in the hands of two powerful corporations for a long term of years the operation of the existing lines and the construction of new works. The details of the plan may be found in Professor Hadley's instructive book on Railway Transportation, to which I have frequently referred for facts. It is obvious that while there is competition between the two railway companies of Italy, it is a competition which is not likely to run to extremities, or to develop excesses. On many accounts the present Italian system seems one of the best that could be devised.

A notable correspondence is observable between the Italian and the Canadian system. In Canada also two great companies substantially control all the railways of the dominion, competing at important points, striving with each other for admission into new fields, and affording a large measure of competition, without subjecting the country to the

evils which arise from the unrestrained competition of innumerable companies organized at the will of individuals.

This audience is accustomed to dealing with figures and I take great pleasure in submitting a few interesting data which have been kindly prepared for this purpose by Mr. C. C. McCain, the accomplished auditor of the Interstate commerce commission, showing the number of miles of railway, number of miles per 100 square miles of territory and number of miles per 10,000 inhabitants, in the countries named, during the year 1891.

It will be observed that the number of miles per 100 square miles of territory in the entire United States is not nearly as large as in Great Britain, France and Germany. This of course was to be expected, in view of the fact that so much of the acreage of the United States still remains uninhabited. In the state of Illinois, however, which may be taken as fairly representative of the settled portion of this country, the number of miles per 100 square miles exceeds that of any other country named, while the number of miles per 10,000 population in that state, and also in the United States as a whole, is from four to ten times as great as in any other country.

The figures are as follows:

	Miles of Railway.	Miles per 100 sq. mi.	Miles per 10,000 pop.
Germany - - - - -	28,982.63	12.87	5.28
France - - - - -	23,578.73	11.27	6.09
Austria-Hungary - - - - -	17,439.54	6.60	4.10
Italy - - - - -	8,193.46	7.40	2.67
Spain - - - - -	6,295.16	3.22	3.60
Great Britain and Ireland - - - - -	20,181.05	16.57	5.34
United States - - - - -	168,402.74	5.67	26.29
Illinois - - - - -	10,223.13	18.25	26.20

The lesson to be drawn from this hasty survey of the history of railway building in several of the leading countries of the world is obvious. When financial conditions make its use available the competitive plan is sure to promote a wide and free development of railway transportation; and it is only to be deprecated when its use overruns the safe line of conservative investment and reaches out into ruinous excess. For this some restraint should be everywhere provided. The question is one of the granting of unnecessary charters, which can only be controlled by action of the various states; and such action cannot at once be expected. But capitalists can and do deprecate the construction of railroads which simply parallel existing lines and it is properly becoming increasingly difficult to obtain money for that purpose.

II. RAILWAY OPERATION.

In the operation of railways, the distinction between the results of competitive and non-competitive methods may be even more clearly noted. State control involves the absence of competition; it is essentially monopolistic. No competition exists in France, where the territory is divided. Competition between two competitors only is found in Italy and Canada. In Germany, Belgium and some other countries the government itself is subject to a certain measure of competition from lines operated by private companies, over which,

nevertheless, the state has much power of control. In England there is a strong competition in some respects between the half dozen leading lines which practically cover the country, but competitive excess in respect to rates has been controlled by agreements, called conferences, between the competitors themselves. Railway shareholders and the representatives of capital generally are potential in the English parliament, and are not regarded with disfavor by the English courts. The effect of water competition in England upon railway rates has been notable, resulting in disparities between rates from seaport to seaport as compared with purely inland rates. The general conservatism of English methods and the recognized obligation of paying dividends sufficed to maintain rates between competitive railroads without substantial change for many years. Some three years since a parliamentary investigation was set on foot which was followed by the framing of a bill conferring additional powers upon the board of trade, and finally resulting in the imposition of an amended classification and a system of maximum rates, which went into operation with the present year, the results of which have not yet been fully worked out.

In the United States a very different policy has prevailed. More than six hundred operating lines exercise an absolutely independent rate-making power, and attempts to regulate their competition as to rates have been regarded by the public with extreme disfavor. Each railway company is organically distinct from every other railway company. The business of every section is common to several competing lines. Intense rivalry has been developed between the traffic officials of all. Not only does violent competition exist at commercial centers but even at strictly local points it controls rates and the business methods of the railways to an extent much greater than is generally understood. It would be almost impossible to find any point on the line of any important road where transportation charges could now be arbitrarily established upon the basis of cost of service, or upon any other definite rule. Moreover, there is a vast system of water routes on which the expense of transportation is relatively very small, exerting an incalculable influence upon railway rates. The result has been the development of the greatest freedom in the movement of traffic which the world has ever seen, stimulated by a scale of rates which may safely be styled abnormally low. This has been in many respects of great value to the nation. It has resulted in the effacement of the boundaries of the states so far as the interchange of commerce is concerned. It has brought the granaries of the west so near to the Atlantic seaboard that agricultural values in the eastern states have been seriously disturbed. It assembles ores, cokes and coals from mining regions, separated by thousands of miles, and makes possible the production of metallic products at a cost almost incredibly low. The contrast between the effects of this system and of that in vogue in countries where competition in transportation either does not exist or has been closely limited, is apparent to the most casual observer. It has not only produced the cheapest transportation of freight known to the world, but it has led to the development of operating methods which fairly warrant a lower basis of rates than would have been considered possible to the wildest enthusiast of thirty years ago. The capacity of cars has been trebled, requiring enormous addition to

the power of locomotives ; and their use has been made practicable by the adoption of rails of steel. Numberless devices have been introduced to facilitate the movement of particular classes of traffic. Special cars have been designed for the transportation of different commodities, such as oil cars for oil ; live stock cars for animals ; and especially refrigerator cars for fruit, beer and dressed meats.

On the other hand comparatively little mechanical progress has been observable in some of the countries to which our attention naturally turns. The equipment of roads in continental Europe and even in England does not show the advances which have been so marked in this country. The effort to develop special forms of traffic has been far less apparent. The wagons used still carry the same loads and the trains handled are comparatively light. Old methods are abandoned with great reluctance. The expense of suggested improvements is often a sufficient barrier to their introduction. Rates go on from year to year with little variation, and the general standard of the tariffs is not materially different from that of thirty years ago. In view of the results which are so clearly apparent from competition in the operation of railroads in the United States, the project of their purchase by the general government and their operation by the nation seems not only chimerical, but also suicidal.

But while the primary effects of competition have been so clearly beneficial, its secondary effects have been equally marked. Without question competition in the operation of our railroads has gone much too far.

It was much easier for competition to become disastrous in the handling of railway traffic than in any other industry. For one reason, the number of figures found in the tariffs is almost beyond computation. A wholesale grocer handles a great diversity of articles, for each of which a price must be made ; but the railroad transports each article handled by the grocer, the jobber in dry goods, in hardware, and by every other merchant. Every commodity which is the subject of sale or purchase must have its established tariff ; and these tariffs must not only be fixed for customers at a single point, but must vary for every station on the line. More than this, they must be determined from every station on each line to every station on every other line ; and this not by the mere addition of local charges, but by an adjustment favoring through traffic and requiring the due protection of different markets and producing points. The rates quotable by any single freight agent are almost infinite in number and their infinity is duplicated by the necessary differences made between carload and less-than-carload shipments. In addition to the classification and the rates, each shipment must be governed by a series of established rules, which may be varied as easily and with the same effect. For every detail in respect to which a merchant or manufacturer feels the pressure of competition in his business the traffic manager experiences a thousand.

Moreover there is no such thing as a transfer of railway capital to other uses. A railroad is constructed at vast expense, and when completed the capital invested becomes fixed for all time. However severe the competition, it must be endured. Even in cases of corporate bankruptcy the wheels never cease to turn. A rival company

finds itself competing with a financial shadow, but a very live shadow nevertheless. An interlocutory decree suspends the payment of dividends and of coupons. Operating expenses, if not earned, may be provided for by borrowing upon the certificates of the receiver; and the last state of a line in competition with an absolute bankrupt is far worse than the first, when its competitor was struggling to maintain an apparent insolvency. The strife between rival companies continues even beyond the grave.

With all this opportunity for manipulation in the application of the numberless details of classifications, tariffs and rules, and with this strife that can never end, even though a corporation be financially ruined under its exactions, the stringency of railway competition is so great as to have little in common with the ordinary competition of manufacturers, merchants, professions, insurance agencies, and labor. It is far away beyond them all in its severity.

Moreover it is subject to another condition which does not exist elsewhere. Railway rates are treated as within legislative regulation, which is not true as to prices of commodities, or of professional services or labor. Unreasonable rates, that is, rates unreasonably high, are denounced by law; while rates unreasonably low are not illegal, but on the contrary seem by a strange fatuity to be everywhere approved. To such an extent does this idea prevail that railway rates which the exactions or the folly of competitive strife have reduced during a season of what is properly called warfare, are seized upon as standards by legislators and commissioners, under the absurd idea that any rate made by a railroad company must be assumed to be reasonable in the sense of affording adequate compensation for the service rendered. Railway companies are thus in a position of being constantly driven into rate wars and applauded for their energy in conducting them, while at the same time the unremunerative rates then prevailing are seized upon and made permanent.

The unfortunate results of excessive competition are found upon every hand. Three classes will be noted briefly. Railway bankruptcies, rate wars, and unjust discriminations. The number of railway bankruptcies, even during periods of great general prosperity, is simply appalling. The statement was made by the chairman of this railway congress in his opening address that in the seventeen years which ended with 1892, 526 United States railway companies, covering 55,670 miles and representing 3,122 millions of dollars of capital were sold under foreclosure. This was 32 per cent of the present mileage, and 31 per cent of the present capitalization of all the railways of the Union. In 1892, 36 roads with 10,508 miles and representing 357 millions of capital went into receivers' hands, in addition to the foreclosure sales of that year.

It is not for the interest of any country that its investments of capital be discredited and effaced. Our railway securities should rank in foreign markets with the securities of our Government. That they do not so rank is evidenced by the hundreds of millions of such securities which have been returned to our shores during the past three years, as well as by the unfriendly criticism of the English financial press. While the rights of stockholders and even of bondholders are not highly regarded in some portions of our land, it must be conceded by all that

they have rights ; and that competition which destroys their value is of the same nature as the competition which forces the failure of the manufacturer, or the merchant. It does not tend to the general advantage, but the contrary. Moreover it directly leads to monopoly through the opportunities afforded to the competitors which survive of acquiring the property of the bankrupt on easy terms.

It would be far better for the country if its railroads as a whole were earning enough to feel at ease. The retrenchments involved in insufficient earnings are prejudicial to every interest. New construction stops first of all ; then repairs to track, equipment, bridges, stations and other structures are suspended. The number of employ  s is diminished ; the wages of those that remain are reduced. Inefficiency in the handling of the business is developed. The road as a general public servant fails to perform its functions with safety and efficiency. Accidents increase ; and sooner or later every interest to which the railroad is related feels the baneful influence of its insufficient earnings.

There is no sense or business sagacity in this condition. While many railway failures no doubt have been precipitated by undue expansions of territory and overweening ambitions in the management, it cannot be denied that their vast majority have been what are known in trade as honest failures, resulting from actual inability to earn enough to meet the necessary outgoes of the corporation. The operations of many of the roads are conducted upon too close a margin of profit ; the violence of competition has brought down earnings so that many companies are watching every weekly and monthly statement with anxiety, in doubt until the last moment whether a dividend must not be passed or a coupon defaulted. Railway bankruptcies are the first and most obvious result of unhealthy railway competition.

A railway rate war unsettles values, disturbs business relations, makes contracts worthless, encourages speculation, invites disaster. Steadiness in railway rates is the constant demand of the intelligent business man. He dreads all tariff changes and especially all so-called tariff wars. His appeal is for fair and reasonable rates, inviolate from year to year, properly adjusted as between business centers on the one hand and regions of distribution or supply on the other, and constantly alike to all. Excessive competition leads at once to rate reductions, and reprisals are almost sure to follow. A rate war which is thus invited spreads disaster on every hand.

Worse than this, however, in this country has been the tendency to secret manipulations which excessive railway competition has engendered. In the violence of competition it has been thought necessary to give to traffic officials a certain measure of discretion, the importance of which they have been quick to appreciate. They are all engaged in developing, or at least in retaining, the traffic of their respective lines ; and traffic is so easily controlled by pecuniary considerations that the practice of granting them became long since established as a custom and is often claimed by shippers as a right. This results in what is known to the law as unjust discrimination or undue preference. It may be accomplished in a hundred ways. The rebate, the commission, the salary account, the free storage, the cartage allowance, the under billing of weights, the payment of claims, the free pass—these are a few of the many devices which ingenious men have developed for the securing of traffic by the granting of special favors, which do their work only

because they are granted in secret and are not granted to all. In this respect railway competition in the United States has run riot. The most strenuous exertions on the part of intelligent railway managers has proved unavailing to put these methods down, under existing legislative conditions.

Laws for their suppression are passed only to be ignored. The evil must be overcome in some other way than by statute. As was well said the other day in this connection by president Hill, legislation cannot mend a broken limb; the forces of nature must have opportunity to do their work. Yet it is a remarkable fact that the very same law which attempted to put an end to unjust discriminations by fines and imprisonments denounced its heaviest penalty against all efforts to suppress this evil in the only natural way; namely by the voluntary coöperative regulation of the excessive competition which begets it.

This special railway disease is unknown in many—perhaps in most—other countries. It is of course never heard of in France where there is practically no railway competition. It is equally absent in England where railway pools have always been permitted to do their proper work in its suppression; and in Belgium and Germany, where the state roads have always pooled their common traffic with private roads to the end that the business for which they mutually compete may be fairly apportioned to each. I recently asked an official of the Government railways of Austria-Hungary how the prevention of unjust discrimination was accomplished in that country. I had great difficulty in making him understand my meaning. He had never heard of a case in which a shipper was granted a reduced rate or a special privilege. I insisted that nevertheless such a case might possibly occur. He answered that he could not conceive it possible, for the tariffs were observed with absolute integrity in his country as a matter of course; but if such a transaction could be imagined he supposed that the offending agent would be at once delated.

In this particular railway service of the United States has been extremely demoralized by so-called free and unrestricted competition. The only remedy yet suggested that may overcome this difficulty, and at the same time preserve the American system of competitive railway corporations, is the repeal of the anti-pooling law. It could then be made for the interest of the competitors themselves to cease their ruinous strife,—a strife ruinous alike to the competing lines and to the public which submits perforce to the abuses of unjust discrimination.

It is the old, old story. As I said some time ago, competition is a good servant, but a hard master. As applied to railway construction and railway operation it is the true principle for a free people to adopt, but in excess it leads to the worst possible results. The necessity for its restraint must be recognized, and reasonable steps to ensure its regulation within proper bounds should be promoted. The function of law under the regulative power conferred by the constitution upon Congress should be to maintain a general oversight over the management of railways, insisting upon the publicity of rates for the protection of the public, and of accounts for the protection of security holders, restraining extortion and undue preference in the transportation of persons and property, but leaving the carriers entirely free to enter into coöperative engagements among themselves for the maintenance of such rates as shall from time to time be legally established.

RAILWAY STRIKES; WHAT SHOULD BE DONE IN THE WAY OF PREVENTION AND CONTROL.

E. W. MEDDAUGH, GENERAL SOLICITOR CHICAGO & GRAND TRUNK RAILWAY COMPANY.

The terms and conditions on which the wage-earner will render his services to a railway company must be the subject of agreement, as in the case of other employers of men.

The primary question, therefore, in considering what should be done to prevent and control railway strikes, is: How can agreements between employers and their employes respecting the services of the latter be best secured and rendered most certain of fulfillment by the employé? It must be apparent to every one who is familiar with the present attitude and spirit of the followers of labor, as manifested in all departments of industry, that the old conditions, when the capitalist was king and the wage-earner was but little above the dependent serf, have passed away—at least in this country—never to return.

The intelligent and discerning man of A. D. 1693, who could have foreseen the dissemination of education among the masses of the people which now exists in this republic of ours, and in many of the states of Europe, might have predicted the contest we are witnessing here and there between capital and labor. When education was limited to the few, and the masses of men were ignorant, capital, being in the hands of the more intelligent, imposed its own terms upon labor. The law of supply and demand alone, without the coöperative volition of wage-earners, then determined the rate of wages and all other terms of labor, as it determined the price of beef and pork.

It is a saying attributed to a somewhat famous local politician of one of the New England states, that "Education is the bane of democracy," referring to the political party of that name. It has proved to be the bane of capital's arbitrary dominion over labor. Thought is dangerous to the abuses of power everywhere, and the chief value of education is in teaching men to think. The wage-earner has discovered that he has been contributing more of the profits realized than the wages received by him were a fair equivalent for; in other words, that he has not been paid his just share of the profits gained from the joint products of his labor and the capital invested; that the employer has been getting the lion's share. The wage-earner now demands a more equitable division.

He has also arrived at a more or less clear perception of injustice in some of the terms and conditions which the employer has heretofore imposed upon him in the rules and regulations of the service. He demands a modification of these. Capital so long played the rôle of absolute monarch in these matters that it came to believe in its right to dictate. Here, as in other human affairs, a custom long established be-

came its own sufficient excuse for being, and the slightest infringement upon it was resented as a wrong. It is of the essence of conservatism to be stubborn.

These demands of labor have, of course, been resisted; each encroachment upon this time-honored prerogative of capital has been disputed, and labor has been compelled to organize in order to carry on the contest successfully. It early became convinced that capital would yield nothing, would not even correct its more glaring abuses, save on compulsion. This contest between wage-earners and the representatives of capital has now been going on in this country for several years, and, step by step, the former have steadily gained. Many of the ancient privileges of capital have been yielded, and labor is now fast coming to be recognized as having some rights which capital is bound to respect. The controversy is destined to continue, I believe, until labor shall be universally conceded an equal voice with capital in all business affairs in which they coöperate. But before this can be fully realized, wage-earners must reach a much higher educational plane, both intellectual and moral, than they now occupy as a class. They must come to a more comprehensive knowledge of business problems, and a quicker moral sense of contract obligations respecting their services.

It has been, not only natural, but inevitable, that labor should be guilty of excesses in this peaceful conflict. Extremes beget counter-extremes. Action and reaction are equal, here as elsewhere. The wage-earner has sometimes been unreasonable in his demands. This has been partly due to his ignorance of what the employer should reasonably yield, and partly to the same spirit that he has justly complained of in his employer, namely, greed of gain for self, even though it be at another's cost.

His methods of operation, too, have been in some respects not only unjustifiable, but reprehensible. The right of wage-earners in any and all branches of industry to band together for the purpose of exacting from their employers just wages and just conditions of service, is unquestionable. And they have a moral right to quit the service in a body, when not bound by contract, and to refuse to re-enter it until their reasonable demands are granted. But they have neither a moral nor a legal right to forcibly interfere with anyone else who may be willing to work for the wages or on the terms which they reject. The same measure of right and freedom which they claim for themselves they should yield to others—must be compelled by the strong arm of the law to yield, if necessary. Their right of control or interference in this matter is limited to themselves. They may refuse their services on any terms to which they do not agree. But they cannot be permitted, either individually or collectively, to prevent others from giving service on those terms. The exercise of such power is tyranny in its worst form.

And still less is it to be tolerated that they should take possession of their employer's property, and assume to hold and control it as a means of forcing terms. Such methods are not only antagonistic to law, but to the essential spirit of all government. They mean, should they become general in spheres of industry, the universal reign of anarchy; for lawlessness is contagious. Prosperous labor can do nothing else so bad for itself as to indulge in these methods of redress.

We all understand that the final and only complete remedy for un-

reasonable demands of the wage-earner, as for the greedy exactions of the employer, is education. Experience, through these contests between them, will finally bear the fruit of knowledge for both. The wage-earner will learn the simple lesson that to injure the business of the employer by exacting or doing anything which renders it inadequately remunerative, is to injure his own interests. And so the employer will learn that it is one of the conditions of the permanent prosperity of his undertaking that the men who render their services to it are so treated and dealt with, in the matter of wages and other things, as to afford them no just cause for complaint. Then the true balance will be reached, and excesses on either side will cease. But in the interim, and while this educational process is going on, the law must here, as elsewhere, be invoked to mitigate the evils incident to ignorance.

Starting, then, with the equal right of labor with capital to determine what share of the profits of any industrial enterprise in which they are jointly engaged, it shall receive, and conceding that this must be settled by agreement between the capitalist and wage-earner (and I see no other way of settling it), we are at once met by a practical difficulty. Capital is always represented by a responsible body, natural or artificial—a body with power to enter into contracts, and which is legally liable for their breach, and has more or less of pecuniary responsibility. Labor, on the other hand, with wage-earners organized as at present in this country, presents no association known to the law as its representative. Its organizations as such are practically without legal liability, or pecuniary responsibility. They are incapable of entering into a contract that is enforceable respecting the services of their members. And yet the individual members insist that employers shall recognize the association, and deal only with its officers, in all matters of difference between the employer and his men. The employer cannot be sure of the permanency of any terms made with these bodies in respect of the services of labor, and knows that he is without legal remedy for the breach of their agreements. This situation of labor, in addition to the disadvantage to which it subjects the representatives of capital, prejudices the interests of labor itself, for it discourages capital from engaging in business enterprises, and causes its representatives to shrink from making terms through these labor associations with wage-earners. The capitalist feels this want of parity of relations and responsibility.

It is of primary importance to labor, if it is to continued to be represented in its several and separate departments be organized bodies—and that it should be so is equally its own interest and that of capital—that its representatives should be legally incorporated, with officers who can represent and act for the body, and enter into contracts that will be obligatory upon it and its members, and for breach of which there shall be legal liability and pecuniary responsibility, with power in the corporation to enforce such penalties against members who violate agreements regularly made in respect of their services, as will protect it against loss. With such a body the representatives of capital could safely deal; and it would give the employers of labor a sense of certainty and security under contracts respecting this most important element in all business enterprises. Confidence would then take the place of the timidity and uncertainty which are now felt respecting

the element of labor. Business schemes which the enterprising but ever cautious capitalist now hesitates to enter upon because of the impossibility of rendering certain the cost of the labor involved in them, would then be readily undertaken. The value that this improved state of things would be to the wage-earner is apparent.

I cannot here consider in detail the provisions of a law for the incorporation, guidance and government of such labor organizations. Nor can I take time to discuss the question of whether the popular labor combinations can be forced to organize under such a law, subject to the alternative of disbanding altogether. I will only add that it is quite feasible, I think, to draft an act for the incorporation of wage-earners which will fairly protect their rights and interests and the rights and interests of their employers, and which should, therefore, be equally acceptable to both; and I believe that when this shall have been done, and it shall have been enacted into a law, wage-earners of all classes can be made to see and appreciate its advantages, and that they will gladly avail themselves of its provisions. There is no more worthy work open to the patriot and philanthropist today in this country, than the perfection and procurement of such legislation. This so-called labor question is the irrepressible one of our time, and there will be no permanent peace between the wage-earners and their employers until it is settled.

"The leaders of industry, if industry is ever to be led, are virtually the captains of the world. If there be no nobleness in them, there will never be an aristocracy," said Thomas Carlyle.

It is necessary that these captains of industry—the leaders of labor and of business capital—be brought to a full realization of the great work needful to be done in bringing these two interests into better relations with each other—their natural relations of friendly coöperation—and to inspire them with that sense of "nobleness" which shall move them to the accomplishment of it. There is surely more honor in the attainment of this end than in a silent seat in the halls of legislation, state or national. It is an achievement worthy the ambition of any man, however great in intellect or learning he may be.

The adoption of the plan I have outlined, or of some other by which the cost and other terms of labor in business affairs can be determined in advance and rendered certain for a reasonable period of time, is, I firmly believe, a fundamental condition of permanent peaceful relations between wage-earners and their employers, including those who are in control of the operations of railroads. Skilled and unskilled laborers have discovered that there is strength in union—in organized coöperation—for the accomplishment of the ends desired by them. They are not likely to abandon the idea. It is not the interest either of the employing class or the general public to antagonize them in this, but is equally the interest of both, and of laborers as well, that they should be so organized under and in pursuance of a law wisely framed, with due regard, in its provisions, for the interests, rights, and duties of all concerned. As I have already said, the wages and other terms of the railway service must be the subject of agreement between the company and its men. Such agreements can be more readily made, and will be much more likely to be performed by the laborer, if made in his behalf by and through a corporation of

which he is a member, and better security for his fulfillment of an agreement can be obtained in this way if the organic act of incorporation has embodied in it the proper remedial provisions.

This belief should, I think, be sought through the state legislatures, and not through congress. It is possible that congress has power to enact a general law for the incorporation of wage-earners who are engaged in work connected with interstate commerce, but it is not necessary nor desirable that it should do so. The subject can be more comprehensively dealt with by the states.

It may be urged as an objection to the statutory recognition of these labor combinations, that they are equivalent in respect of the cost of labor to the so-called trusts and monopolies in business affairs, which it has become so popular of late to decry, and against which we have recently had such a shower of state legislation and some national. And so they undoubtedly are. If the space limited for this paper did not forbid, it would be a pleasant task to meet this objection. Under the circumstances, I will only say that the law of competition, a devotion to which constitutes the basis of the objection, as it does of all the anti-trust movement referred to, is in my opinion a fetch of barbarism, which the world is rapidly outgrowing. The tendency of evolution is away from and out of it. Coöperation is the word which embodies the idea that is to succeed it.

But from this point there is a radical difference between the railway employé in his relation to the business he is serving, and the wage-earner generally in other departments of labor. The latter may be permitted more freedom to disregard his contracts of service than is consistent with the public interest in the case of the former.

Railway companies hold a peculiar relation to the public. They are what the law books term quasi-public corporations. Their primary duty is to the public. A railroad, when built, together with its locomotives, cars, and all other property necessary to the use of the company in its business, is permanently dedicated to the public service. The corporation must operate it so long as the road will pay the cost of operation, even though it does not yield one dollar to the shareholders. The business cannot be discontinued, as in the case of unremunerative private enterprises. The rails cannot be taken up and sold. The public is entitled to the use of the railroad, even though its continued operation results in a total loss to the capital invested. The only right of the owners of the property is to the surplus of earnings over operating expenses. Trains for carrying freight and passengers must be run, and the public must be impartially and faithfully served.

This being the situation and duty of a railway company, under the law, and it being manifest that this duty can only be performed through the agency of men in its service, the logical inference would seem to be that the obligation of the men while in the service and for the term agreed upon, must be coëxtensive in kind with that of the corporation. And so it is believed the law will be adjudged to be, whenever the question is properly raised either in the state or national courts.

While the jurisdiction and common law power of the courts to enforce this obligation of railway employés may enable them to do a great deal—much more than has been generally supposed, I think—in pro-

tection of railway companies and the public from the obstructive methods of these employes, which, at times in the past, have been attended with such great and irreparable loss, the matter should be made the subject of national legislation. The public interest demands it. It is a reproach to our lawmakers that the relations between railway companies and their employes, and the duties of the latter, have not long before this been specifically defined and regulated by statute.

This subject properly belongs to the Congress of the United States under its constitutional power "to regulate commerce with foreign nations and among the several states." It cannot be adequately dealt with by the states. One uniform system of legislation is essential. There are but few railway companies within the United States that are not subject, in this respect, to congressional interference and control.

What the scope and character of the powers of Congress are, in respect of this matter, will sufficiently appear in the following extracts from judgments of the Supreme Court of the United States:

It was said by Chief Justice Marshall, in *Gibbons vs. Ogden*, that "This power, like all others vested in Congress, is complete in itself, may be exercised to its utmost extent, and acknowledges no limitations other than are prescribed in the Constitution. * * * If, as has always been understood, the sovereignty of Congress, though limited to specified objects, is plenary as to those objects, the power over commerce with foreign nations, and among the several states, is vested in Congress as absolutely as it would be in a single government," etc.

In the case of the *United States vs. Coombs* (12 Peters), the court, speaking of this power, said: "It does not stop at the mere boundary line of a state, nor is it confined to acts done on the water, or in the necessary course of the navigation thereof. It extends to such acts done on land, which interfere with, obstruct, or prevent the due exercise of the power to regulate commerce and navigation with foreign nations, and among the states. Any offense which thus interferes with, obstructs, or prevents such commerce and navigation, though done on land, may be punished by Congress under its general authority to make all laws necessary and proper to execute their delegated constitutional powers."

In *Gloucester Ferry Company vs. Pennsylvania* (114 U. S.) it was said: "Commerce among the states consists of intercourse and traffic between their citizens, and includes the transportation of persons and property, and the navigation of public waters for that purpose, as well as the purchase, sale, and exchange of commodities. The power to regulate that commerce, as well as commerce with foreign nations, vested in Congress, is the power to prescribe the rules by which it shall be governed, that is, the conditions upon which it shall be conducted; to determine when it shall be free and when subject to duties or other exactions. The power also embraces within its control all the instrumentalities by which that commerce may be carried on, and the means by which it may be aided and encouraged. The subjects, therefore, upon which the power may be exerted, are of infinite variety."

In *Pensacola Telegraph Company vs. Western Union Telegraph Company* (96 U. S. 9), the court, referring to the powers of Congress under this grant, said: "They keep pace with the progress of the

country, and adapt themselves to the new developments of time and circumstances. They extend from the horse with its rider to the stage coach, from the sailing vessel to the steamboat, from the coach and the steamboat to the railroad, and from the railroad to the telegraph, as these new agencies are successively brought into use to meet the demands of increasing population and wealth. They were intended for the government or the business to which they relate at all times and under all circumstances."

In the case of the "Daniel Ball" (10 Wall. 557), Justice Field, in reply to the contention that the vessel was not engaged in interstate commerce because running only between points in the same state, said: "So far as she was employed in transporting goods destined for other states, or goods brought from without the limits of Michigan and destined to places within that state, she was engaged in commerce between the states. * * * * Whenever a commodity has begun to move as an article of trade from one state to another, commerce in that commodity between the states has commenced."

Through this grant of power to regulate commerce, the court has said, "The whole merchant marine of the country was placed under the control of Congress."

In *Gilman vs. Philadelphia* (3 Wall. 713), it was said: "Wherever 'commerce among the states' goes, the power of the nation, as represented in this court, goes with it, to protect and enforce its rights."

In the *County of Mobile vs. Kimball* (102 U. S.), the court says: "That power is, indeed, without limitation. It authorizes Congress to prescribe the conditions upon which commerce in all its forms shall be conducted between our citizens and the citizens or subjects of other countries, and between the citizens of the several states, and to adopt measures to promote its growth and insure its safety."

In *Sherlock vs. Alling* (93 U. S.), it was said: "It is true that the commercial power conferred by the Constitution is one without limitation. It authorizes legislation with respect to all the subjects of foreign and interstate commerce, the persons engaged in it, and the instruments by which it is carried on."

In *Nashville, etc., Ry. Co. vs. Alabama* (128 U. S.), the validity of a state statute which provided for the examination of engineers with reference to color-blindness, was questioned on the ground of the exclusive right of Congress to regulate such matters where the railway company was engaged in interstate commerce. The court said: "It is conceded that the power of Congress to regulate interstate commerce is plenary; that, as incident to it, Congress may legislate as to the qualifications, duties, and liabilities of employes and others on railway trains engaged in that commerce; and that such legislation will supersede any state action on the subject."

These cases conclusively show that the power of Congress is coëxtensive with the exigencies and needs of the commerce involved.

As illustrative of the kind of control which Congress may exercise over the instrumentalities of commerce by land, including the services of persons employed in the work of transportation, it will aid us to see what has been done in this regard respecting water commerce, remembering that the source of authority of Congress over the former is the

same as that over the latter, namely, its constitutional power to regulate commerce.

The following, among other things, have been embraced and provided for by the laws of Congress :

Masters, mates and engineers of steam vessels are required to have a license.

A licensed officer of a vessel who wrongfully or unreasonably refuses to serve, may have his license revoked.

Masters of vessels for a foreign voyage are required to have written or printed contracts with each member of the crew, specifying the duration of voyage, etc.

A similar contract is required with the crew of vessels engaged in the coasting trade.

These contracts are required to specify the hour when the seaman shall "render himself on board" the vessel, and the seaman is made liable to a forfeiture of one day's wages for every hour's absence after the time specified; if he deserts, or wholly fails to appear, he is liable to a penalty.

After inspection and approval of a vessel which seamen have pronounced unseaworthy, if they refuse to serve, they are liable to imprisonment until they have paid a prescribed penalty.

The penalty for desertion is imprisonment for three months. For refusing to join the vessel or to proceed on the voyage, or for absence from the vessel or from duty without sufficient reason, the seaman is liable to imprisonment one month and the forfeiture of wages.

For disobedience of any lawful order or command, he may be imprisoned for two months. And for continued willful disobedience of any lawful command, or continued willful neglect of duty, he may be imprisoned for six months.

For a combination with others of the crew to disobey lawful commands or neglect of duty, or to impede navigation of the vessel or progress of the voyage, he is subject to imprisonment for the period of twelve months.

For willfully causing any injury to the vessel or cargo, he is punishable by imprisonment for one year, while mutiny or revolt subjects the offender to five years' imprisonment and a fine of one thousand dollars. The usurpation of the command of a vessel is punishable by ten years' imprisonment and a fine of two thousand dollars.

All water craft above a certain tonnage capacity are required to be inspected and to have a license; and rules of navigation are prescribed for them, having reference to the protection of the traffic carried and the lives of the passengers and crew.

These statutory laws also contain full and ample provisions for protecting the crew against imposition and abuses by the owners and officers of vessels.

These enactments are so suggestive of what Congress may do to save railway companies and the public from the fearfully serious effect of railroad strikes, that it hardly seems necessary to further indicate its power over this subject.

Bear in mind that the mainspring for all this legislation has been the interest of commerce, of trade and traffic, among our own people and between them and the people of foreign nations, and that it is now

settled beyond the possibility of a doubt, by the supreme authority of the nation in such questions, that there is no distinction between commerce by water and commerce by land, in respect of the exercise by Congress of the constitutional power by virtue of which these laws were passed.

Why, then, should not Congress promptly come to the relief of land commerce in this matter? There exist the same reasons, so far as the commerce is concerned, for extending these provisions of the marine law to railway companies and their employes, that originally called for their enactment as to water carriers and their employes, and now justify their continuance on the statute book. Commerce by railroad is as sacred as commerce by water. Its interruption for a day or a week, by the willful combined action of employes who abandon the service, in violation of contract duty, either express or implied, and, by threats and assaults, intimidate others from taking their places, is followed by the same pecuniary consequences in kind, and in the same interests, as a similar interruption of commerce on the water by the mutiny of a crew. If protection against the latter is justifiable or necessary, protection against the former is equally so.

It should be added that the power of Congress in this matter is not limited simply to the regulation of the instrumentalities used in interstate and international commerce. As an incident of its power to protect commerce which is within the jurisdiction of national legislation, it is held to be the right of Congress to impose duties in respect of commerce which is confined to a single state. This opens a wide field for its control, in the relations between railway companies and their employes, as in other things connected with the operation of railroads. Broadly speaking, it may be safely affirmed that Congress may by law impose any duty or prohibit any act which is necessary to secure or promote the efficient service of the carrier in the transportation of traffic between the states and between the United States and foreign nations; and that this power extends to railway companies lying entirely within one state, if they are engaged in interstate commerce within the ruling of the Supreme Court in the case of the "Daniel Ball," to which I have referred.

The complete remedy, then, for railway strikes, so far as it is possible for the law to supply a remedy, is clearly within the power of Congress, and the path of it is a beaten one. It involves no new and untried theory—only an extension of the protective arm of the government over the whole commerce of the country within its jurisdiction, instead of confining it, as is mostly the case at present, to commerce by water. Governmental protection of the latter in the particular under consideration, is nearly as old as the government itself. Time and experience have proved the wisdom of it. Let us now have the same measure of protection granted to the enormous commerce carried by the railroads. This railway commerce, both in quantity and value, is very great. So far as this consideration should have any weight in determining the action of Congress in the premises, there is at least, equal reason for its regulation and control with that for the regulation of commerce by water.

There was a mild recognition in the interstate commerce law of the propriety and necessity of some legislation on this subject. It is

there provided, as an incident of the duty imposed on railway companies to accept and carry traffic without discrimination, that their agents and employes shall be punishable for willfully neglecting or refusing to perform any function devolving upon them in respect of this. Judges Taft and Ricks, in the famous Ann Arbor case, were called upon to apply and enforce the appropriate legal remedy against railway employes under this provision; and for the faithful and fearless discharge of this duty they were rewarded with much flippant and foolish adverse criticism by some of the newspapers of the country. But while this provision of the interstate commerce law is in the right direction, it falls far short of the full measure of relief which the situation demands. The protection to commerce, which is the aim and purpose of the provision, and constitutes the reason of its embodiment in the law, cannot be adequately secured under it. Further legislation is imperatively necessary, if the policy expressed in this provision of the act is to continue and be carried forward to the measure of relief which Congress has the power to afford, and the conditions require.

Railway companies employed in commerce with foreign nations or among the states, should be required to make written agreements with their employes in every department, covering all the terms of service including a definite period of time. While it would greatly facilitate the making of these agreements and simplify the business relation between the companies and the employes to have the employes of each distinct department organized into a corporation under a wisely prepared law, this may not be necessary to the plan. It may be practicable to secure a separate agreement with each employe. This will depend in existing conditions on the action of the associations which the men are members. Such an agreement being made, similar statutory provisions to those now existing which prescribe the duties of employes on vessels engaged in commerce, should be enacted in respect of railway companies and their employes. The remedy should be as broad as the evil. The law should, therefore, embrace all railway employes in every department of the service—the mechanic who repairs the engines and the cars, the switchmen and others who have any duty to perform in connection with the movement of the power or rolling stock of the company, the men engaged in handling freight, in loading it into or in discharging it from cars, or in receiving it into or delivering it from the carrier's warehouse: and it should also embrace all persons who handle or carry the freight between the carrier and the shipper or consignee. It may, and properly should, go one step further and provide that any act of persons not in the service of a railway company in aid or abetment of others in obstructing this commerce, shall be punishable even more severely than a similar act of the employes themselves. A great part of the embarrassment heretofore experienced by railway companies for strikes has come from the interference of an outside lawless element. Persons of this worthless and idle class of the community are usually guilty of the acts of vandalism of which we hear in connection with railway strikes, and not the railway employes.

In connection with this legislation and as germane to the same subject matter, Congress should prescribe the duties of railway companies to their employes in respect of devices and appliances for protecting

them from personal injuries, etc. The subject is clearly within the province of the national legislature. In recognition of this an act was passed near the close of the last Congress which makes it incumbent on railway companies to equip their engines and cars with automatic couplers and power brakes within a prescribed period of time. This was for the protection of employes. Other and further legislation in the same interest may be necessary. Congress having the undoubted power to cover the entire field involving the reciprocal rights and duties of railway companies and their employes, and of the duties of both to the public, should unhesitatingly and promptly exercise it.

The suggestion of the legislation here advocated will no doubt be met in some quarters with the familiar cry of "un-Jeffersonian," "un-American," etc. It will be called an unjust interference with the liberty of the citizen. We are in grave danger in this country of forgetting that there is a distinction between unlimited license of conduct, and liberty of conduct under law. The former is anarchy, the latter is government. "Each for all and all for each," expresses the true relation between the individual American citizen and the organized whole of the government. The limit of the liberty of each can only be ascertained by a due consideration of the well-being of all. The interests which are dependent upon the prompt and unobstructed movement of the railway traffic of the United States are many and great. Wage-earners in thousands of other fields of industry are dependent upon it, as will be apparent to anyone who reflects upon the subject. All branches and kinds of industry rely upon these artificial channels of commerce, not only for the material used by them, and for reaching the market with their products, but in a vast majority of cases, for the food of their operatives and workmen. How long could the people of most of the great cities of this country live with all railway communication cut off? These business centers of the interior have been made by the railroads, and their continued existence is literally dependent upon them.

The railway employé is, therefore, not the only wage-earner who is deeply interested in this matter; the wage-earners alone in other fields of industry throughout the United States, who vastly outnumber, in the aggregate, the total number engaged in the railway service, have a direct and profound interest in it. And sooner or later, if the disturbance of railway traffic from these strikes continue, these other wage earners, and the people at large as well, are destined to have a serious awakening to their interest in this question. It is asserted that railway companies have made all the concessions to their employes, in the way of wages, that the business will bear. If further exactions come in this direction, I predict that they will not be yielded to, even though the alternative be a total suspension of the train service. What this would mean to the public, if such action should involve a considerable number of railroads, as it may, and only a few months since came very near doing, is too apparent to require stating. Every intelligent, thinking person must see that there exists a public necessity of overwhelming magnitude and importance for the unobstructed flow of this railway commerce; and it follows that the men who are engaged in this quasi-public service should be compelled to surrender

something of that measure of personal freedom of action which may properly be left to them in other employments. They may not under normal conditions be forced into the service, but, having voluntarily entered it, they must comply with such terms as the public character of the business reasonably imposes. This requirement is not unjust, nor is it "un-American." It is simply a necessary incident of the business.

The final, but by no means least important, question, is, can this relief be obtained from Congress? I have not the gift of prophecy, but it may be confidently asserted, I think, that this will depend on whether the members of the national Senate and House of Representatives can be made to see that a majority of the people desire it. A vigorous opposition may be expected from the employes of railway companies. Members of Congress will be made to feel their influence. These employes have the power of the ballot, and this, with the average American politician, is as potent a weapon for controlling his actions on legislative measures as the sword in the hand of the tyrant ever was. His first and last thought is, What will be the effect of this upon my tenure of office?

In these conditions, the only hope lies in an organized and systematic effort to enlighten the popular mind. That part of the public not engaged in the railway service—merchants, manufacturers, shippers of all classes, and laborers in all other branches of industry—must be made to see and feel the great interest they have in the regular and unobstructed movement of railway traffic. When this great mass of voters shall fully realize their interest in this, the prompt action of the Congress of the United States in enacting the needed law will be assured, for then, in each congressional district, the majority will be unquestionably found on that side.

This may seem to some like a forlorn hope, but not so to me. Popular education in matters of this kind is often very rapid. Literature can do much. The newspapers are a great educational agency. I do not believe that I am over sanguine in asserting that nineteen-twentieths of the daily press can be convinced of the essential justice and imperative importance of this congressional legislation, and induced to advocate it. Pamphlets should be written on the subject, and steps taken to circulate them thoroughly among all classes, briefly and plainly pointing out the reasons for the legislation desired. This work is very likely to be supplemented by events which will greatly aid the educational process. Further railway strikes are sure to come, based on demands for higher wages. If it be true, as it is believed to be, that these railway companies are not in a financial condition to warrant an advance of wages, let them simply refuse, and accept the inevitable result of a suspension of the operation of the road, if a strike involve this. A very few days of the public experience of this, on a large scale, would be the equivalent, in immediate educational effect with the people, of a generation of discussion.

In the Ann Arbor case to which I have referred, Judge Ricks says: "These cars carry the product of factories whose output must be speedily carried away to keep their employes in labor. The suspension of work on the line of such a vast railroad * * * would paralyze the business of the entire country, entailing losses and bringing disaster to

thousands of unoffending citizens. Contracts would be broken, perishable property destroyed, the traveling public embarrassed, and injuries sustained too many and too vast to be enumerated."

It is only necessary to bring the great general public to a keen realization of all this to insure legislative relief, and this can be accomplished by concert of action and vigorous effort on the part of the railway companies.

RAILWAY ACCIDENTS; THEIR CAUSES AND THE PRACTICABLE SAFEGUARDS AGAINST THEM.

H. S. HAINES, VICE-PRESIDENT THE PLANT RAILWAY SYSTEM; PRESIDENT THE AMERICAN RAILWAY ASSOCIATION.

I have been requested to prepare for the Railway Commerce Congress, a paper upon "Railway accidents; their causes and practicable safeguards against them."

In seeking the causes of railway train accidents, they may be variously classified as between those for which the railway corporations may properly be held responsible as due to defects in track, in equipment or in regulations, and those for which they should not be held responsible because beyond their control; as when proximately caused by obstructions, by malice, by negligence, or by disobedience of orders.

The personal injuries resulting from train accidents may be classified as affecting passengers, or employes, or trespassers, or persons rightfully on the railway tracks or grounds, and there is a class of personal injuries by trains which cannot be included in railway train accidents, as occurring at road crossings, or where employes fall from trains, or are injured in coupling.

In the discussion of practicable safeguards against train accidents something should be determined as to their relative frequency as attributable to the several causes to which they are due.

The official report of the interstate commerce commission and of the Massachusetts railroad commission refer only to those accidents from which personal injuries resulted. The Railroad Gazette has for many years published monthly and annual statistics of train accidents in this country, grouped as to their character and cause.

In an editorial article on train accidents in 1892, published in February last, there is a tabulated statement of this kind covering the past twenty years. These statistics are necessarily based upon insufficient data, mainly from newspaper items; but though confessedly incomplete, this is all that is available for the purpose. In this statement the accidents are compared in periods of five years, beginning with 1873 and extending to 1892, giving the averages per annum in each period; those in the year 1892 being also classified separately. The classification is under the three general heads of collisions, derailments, and accidents neither collisions nor derailments. Then these general heads have been subdivided with reference to the specific causes so far as ascertained.

From these statistics I have prepared two tables, as follows :

Table A; showing the percentage of each class of accidents to the total number per annum as averaged in each period.

Table B; showing

First. The average number of each class of accidents in proportion to the number of millions of revenue train miles.

Second. The average number of millions of revenue train miles to each class of accidents.

The information as to revenue train miles has only been obtained for the periods 1883 to 1887, 1888 to 1892, and for the year 1892.

TABLE A.

RAILROAD ACCIDENTS IN THE UNITED STATES, 1873 TO 1892.

From the Railroad Gazette.

CHARACTER OF ACCIDENT.	ANNUAL AVERAGE FOR PERIOD.					PERCENTAGE OF TOTAL PER ANNUM.				
	'73-'77	'78-'82	'83-'87	'88-'92	1892	'73-'77	'78-'82	'83-'87	'88-'92	1892
<i>Collisions—</i>										
Rear - - -	155	275	343	464	485	.147	.248	.250	.221	.208
Butting - - -	96	121	174	286	251	.091	.109	.126	.136	.108
Crossing and Miscell.	43	21	32	200	326	.041	.019	.024	.090	.140
Total collisions -	294	417	549	950	1062	.279	.376	.400	.456	.456
<i>Deraillments from—</i>										
Defects of road -	149	116	192	176	191	.147	.105	.140	.084	.082
Defects of equipment	76	79	108	169	206	.072	.071	.078	.080	.088
Negligence in operating	97	91	105	125	164	.092	.082	.077	.060	.070
Unforeseen obstructions	158	128	156	198	179	.150	.116	.114	.094	.077
Unexplained - -	228	232	187	384	425	.217	.209	.136	.182	.183
Total deraillments -	708	646	748	1052	1165	.673	.583	.545	.500	.500
<i>Accidents without col-</i>										
<i>lision or derailment—</i>										
To locomotives -	23	29	39	34	34	.021	.026	.028	.002	.002
To cars - - -	13	8	18	17	15	.012	.007	.013	.001	.001
Cars burned while run'g	9	8	10	12	13	.009	.007	.008	.001	.001
Other causes - -	6	1	8	29	38	.006	.001	.006	.001	.001
Total accidents without collision or derailment	51	46	75	92	100	.048	.041	.055	.004	.004
<i>Total train accidents</i>	1053	1109	1372	2103	2327					
<i>Revenue train mileage—</i>										
<i>millions - - -</i>			570.7	781.2	870					

An examination of Table A presents certain results as follows :

1st. The total number of accidents reported upon has doubled during the total period under consideration.

2nd. Over one-half of these accidents are classified as deraillments.

3rd. The percentage of deraillments per annum decreased from 67 per cent of the total in the first period to 50 per cent in the last.

4th. The percentage of collisions per annum increased from 28 per cent of the total in the first period to 45 per cent in the last.

5th. The percentage of accidents that were neither collisions nor deraillments has been very small.

TABLE B.

THE FREQUENCY OF DIFFERENT CLASSES OF RAILROAD ACCIDENTS IN THE UNITED STATES.

NATURE OF ACCIDENT.	NUMBER OF ACCIDENTS PER ONE MILLION TRAIN MILES.			TRAIN MILES RUN TO ONE ACCIDENT.		
	'83-'87	'88-'92	1892	1883-1887	1888-1892	1892
—						
- - - - -	.60	.59	.56	1,666,666	1,694,515	1,785,714
- - - - -	.30	.37	.29	3,333,333	2,702,702	3,448,272
and Miscellaneous -	.06	.27	.37	16,666,666	3,703,703	2,702,702
Collisions - - -	.96	1.23	1.22	1,041,625	812,113	819,754
Derailments from—						
road - - - - -	.34	.23	.22	2,941,173	4,347,821	4,545,454
equipment - - -	.19	.22	.23	5,263,157	4,545,454	4,347,821
in operating - -	.19	.16	.19	5,263,157	6,250,000	5,263,157
at obstructions -	.27	.25	.21	3,703,703	4,000,000	4,761,904
and - - - - -	.32	.49	.49	3,125,000	2,040,816	2,040,816
Derailments - - -	1.31	1.35	1.34	763,358	740,740	746,268
Collisions without collision or						
derailment—						
atives - - - - -	.07	.05	.04	14,285,714	20,000,000	25,000,000
- - - - -	.03	.02	.02	33,333,333	50,000,000	50,000,000
and while running -	.02	.02	.01	50,000,000	50,000,000	100,000,000
ies - - - - -	.01	.03	.04	100,000,000	33,333,333	25,000,000
idents without collision or						
derailment - - -	.13	.12	.11	7,692,317	8,333,333	9,090,909
in accidents -	2.40	2.70	2.67	416,666	370,370	374,531
mileage in millions -	570.7	781.2	870			

In examination of Table B consideration will therefore be given to collisions and derailments. This table has been prepared to show the relative probability of the occurrence of any particular kind of accident in proportion to the revenue train mileage. This can only be done for two periods from 1883 to 1887 and from 1888 to 1892, also separately for 1892.

The conclusions to be drawn from this table are as follows:

1. The liability to train accidents has somewhat increased with increasing train mileage; as for instance, the average distance run for one collision was

period 1883-1887, - - - - - 416,666 Miles
 period 1888-1892, - - - - - 370,370 "

This may be due to an increasing tendency to the publication of statistics, and consequently to a greater number proportionately to the mileage being included in the published statements, but so far as these figures are concerned, they bear out the assertion that train accidents have increased. This does not warrant the inference that the number of persons injured has increased relatively to revenue train mileage, a question which will be treated separately.

2. The increased liability to accidents has been to collisions rather than to derailments; for instance

	One Collision to	One Derailment to
87, - - - - -	1,041,625 miles,	812,113 miles
92, - - - - -	763,358 "	700,740 "

Third. With reference to collisions alone they are classified as to frequency as follows :

Character	1883-87	1888-92
Rear, - - - - -	one to 1,666,666 miles	1,694,515 miles
Butting, - - - - -	" " 3,333,333 "	2,702,702 "
Crossing or miscellaneous, - - - - -	" " 16,666,666 "	3,703,703 "
Total, - - - - -	" " 1,041,625 miles	812,113 miles

The proportion of rear collisions to train mileage has remained about the same from one period to the other. There has been a slight increase in butting collisions, but the great increase which has principally affected the total result, has been in what are termed "crossing or miscellaneous."

Fourth. With reference to derailments alone they are classified as to frequency as follows :

Cause	1883-87	1888-92
Defects of road, - - - - -	one to 2,941,173 miles	4,347,821 miles
Defects of equipment, - - - - -	" " 5,263,157 "	4,545,454 "
Negligence in operating, - - - - -	" " 5,263,157 "	6,250,000 "
Unforeseen obstructions, - - - - -	" " 3,703,703 "	4,000,000 "
Unexplained, - - - - -	" " 3,125,000 "	2,040,816 "
Total, - - - - -	one to 763,358 miles	740,740 miles

The discussion of the causes of derailment is made less valuable because in so large a proportion of the accidents reported the cause is not given. Referring alone to those for which the cause is given, the relative frequency in proportion to train mileage has increased in those due to defects of equipment and has decreased in those due to defects of roads, to negligence in operating and to unforeseen obstructions.

With this general statement of facts and conclusions we must endeavor to discuss the practicability of remedies, beginning with collisions, classified as rear, butting and crossing or miscellaneous. In doing this it is necessary to get down to particulars, for which I will confine myself in the statement of 1892 as given in the Railroad Gazette for each month separately.

In the year 1892 the number of collisions reported is as follows :

	Number	Per cent of total
Rear - - - - -	502	47
Butting - - - - -	323	30
Crossing and miscellaneous - - - - -	238	23
Total - - - - -	1063	

Of these collisions some particulars are given as follows :

	Total	No. particularized	Per cent of total
Rear - - - - -	502	230	45
Butting - - - - -	323	220	68
Crossing and miscellaneous - - - - -	238	64	27
	1063	514	48

Taking the rear collisions by themselves as particularized, the rear train and the forward train in each can be classified as follows :

	Rear Train	Forward Train
Passenger train, - - - - -	68	39
Freight train, - - - - -	109	112
Freight train parted, - - - - -	35	27
Cars not in a train, - - - - -	2	31
Engines not in train, - - - - -	7	9
Miscellaneous, - - - - -	9	12

In about one-half of these instances it was a freight train that either ran into the forward train or was run into. This is not surprising since there are so many more freight trains than passenger trains. Indeed the large proportion of passenger trains involved in rear collisions as compared with freight trains is more a matter of surprise, though this is to some extent accounted for by the greater probability that a passenger train collision would become a matter of notoriety and get into the newspapers. But in these reported cases the passenger train has been hit by the rear train nearly twice as often as the forward train, which can be accounted for by its greater speed as tending to make it both more difficult to prevent a rear collision when the passenger train was following, and more easy for the forward train to escape from impending collision when the passenger train was ahead.

In cases where a freight train parted a collision between the two parts appears in this statement as both the rear and the forward trains. In some cases the rear portion of a parted train appears as the forward train where it has been run into by a following train, and in a few instances as the rear train where it has rolled back down a grade and into the rear of another train.

The number of collisions with loose cars not part of a train is greater than was to be expected. This is largely due to misplaced switches leading an approaching train into a siding occupied by cars, though in some instances the cars were started out of the sidings and ran down grade into a train on the main line.

These rear collisions may be differently classified in accordance with the place at which they occurred, as for instance :

Between stations, - - - - -	86
At stations, - - - - -	77
Train parted, - - - - -	27
Misplaced switch, - - - - -	25
Not stated, - - - - -	15
Total, - - - - -	230

With this information as to the circumstances under which these rear collisions took place, reference may be made to the proper remedies or rather preventives.

Defects in drawgear are accountable for the 27 cases in which trains parted, and negligence of employes for the 25 cases in which a collision was due to a misplaced switch. This leaves 163 collisions nearly equally divided as to the place of occurrence, whether at stations or between stations.

As a general proposition two trains proceeding in the same direction should be separated by an interval of space sufficient for the following train to be stopped at any time within that interval. To accomplish this the engineer of the following train must be informed whenever the limit of that interval is being encroached upon.

The extent of this interval of safety must vary with the speed of the rear train, the gradient of the track and the efficiency of the appliances provided for bringing the train to a state of rest—for example, as between a light train, equipped with air-brakes proceeding slowly up an one per cent. grade, and a heavy train, equipped with hand-brakes proceeding rapidly down the same grade. Conditions of weather tending to obscure the range of vision or to lessen the adhesion of wheels to the track or of brakes to the wheels may also serve to extend the interval of safety.

When the prevailing conditions extend the limit of this interval beyond the range of vision of the engineer of the following train it must be preserved in other ways. The standard code of train rules adopted by the American railway association recognizes but two; the block system and the flagman of the preceding train.

In degree of efficiency these two ways are about as far apart as the poles of the earth; one being the latest expression of human ingenuity as applied to railway practice; the other a makeshift, the inefficiency of which is in proportion to the indolence or stupidity of the flagman. The absolute block system, rigidly applied, will absolutely preserve a stated interval between following trains, but the great cost of its construction and maintenance precludes its use on by far the largest part of the railroad mileage in this country. Where this consideration prevents, reliance is placed upon the watchfulness of the flagman, who is expected, when in his judgment it becomes his duty to secure this interval of safety, to leap from the rear of the moving train and armed with red lantern and torpedoes to plunge boldly into the darkness of night, perhaps facing rain, snow or sleet, hastening toward the headlight of the following train which glares at him as he feels for his footing on the cross-ties upon some lofty bridge or long trestle. At length he reaches the prescribed distance of twenty-six telegraph poles or about one mile, plants his torpedoes and listens with eager ear for the signal of recall. If, through haste to depart or inadvertence, the signal is not given and his train moves off without him, that flagman may pass the night in solitude, perhaps wet, cold and hungry, or until some train stops at his signal and picks him up. Such are the duties required of a flagman, and it takes pluck and endurance to fulfil them.

It also takes intelligent judgment to determine promptly under the four rules for flagmen, making sixty-eight lines of the standard code, just when a flagman must go back, how far he must go, and what he must do when he gets there; yet this important service is generally entrusted to a novice, to an apprentice in training for promotion to a conductor's place or to some sturdy brakeman, accustomed, it is true, to the hardships of train service, but also to successfully evading them. Either through ignorance or doubt or fear of being left the flagman may linger around the rear of a train until it is too late for him to stop a following train or he may disappear in the darkness or just around a curve near enough to be handy when recalled, taking the chances as to whether a train is following or not.

It is safe to say that a majority of the rear collisions between stations are due to a failure of the flagman to comply with the rules prescribed by the standard code for his guidance. Here is the principal cause of rear collisions and here a remedy should be applied by rely-

ing less upon the intelligent and willing discharge of the duties thus placed upon the flagman. The most intelligent and most experienced man in the train crew should be the engineer; the best acquainted with the curves, grades, bridges, cuts, embankments and other physical characteristics of the road; the best informed as to the trains passed and to be passed, and when a stop is made or the train slows down at an unusual place, he knows the cause and the probable detention, not only after it occurs but also before, and can often select the safest place for a stop. It is he, then, and not the flagman or conductor who should determine when the rear of his train is to be protected, and the flagman should act promptly when the signal is given to him, but not before, except in emergencies that can readily be suggested. If the burden be plainly put upon the engineer to determine and upon the flagman to act, the action of the latter would be controlled by the most intelligent and best informed man of the train crew.

More extended recognition should be given to the use of the time fusee. Its use at night should be obligatory not only by the flagman but also by the engineer. Whenever he is about to stop or slow down his train at an unusual place, he should drop a lighted ten minute fusee on the right hand side of the track on which the train is running, one mile before the stop is made, and an interval of ten minutes ahead of the following train is at once secured by a sentinel that will not desert its post, by a signal whose unmistakable light will illumine its surroundings, let the wind blow and the rain fall as they may. Such a use of the fusee will not do away with the protection afforded by the flagman, but rather increases it, for as he crosses a bridge on his way to the rear he will feel personally safe so long as he sees that purple light blazing between him and the approaching train. Even in the day time the smoke from a lighted fusee would attract the attention of a following train.

The adoption of these suggestions will measurably reduce the number of rear collisions, but the true preventive is the establishment of an absolute space interval; for any method of time intervals between following trains can afford efficient protection only so long as the trains maintain an uniform schedule speed, can be readily stopped within the recognized interval and are not liable to unexpected delays between signal stations. A heavy freight traffic cannot be satisfactorily conducted under such a system, yet this was the best method available until it became possible to establish an interval of space by means of the electric telegraph. The fundamental principle of the so-called "block" system is that the engineer of a train approaching a station at the end of a block shall be informed as to whether there is or is not a train between that station and the one next in advance. The interval of safety is thus provided, but the exigencies of traffic have induced what is known as the "permissive" as compared with the "absolute" block system, that is, the permission for a following train to enter a block with the knowledge that it is not clear. This system requires that the rear of the first train in a block must be protected by a flagman, with all the vicious consequences already referred to, and where the permissive block system is allowed there should be no dependence placed upon flagmen. When a following train enters a block which is not clear the responsibility should rest upon the engineer of the

following train alone to prevent a collision. He knows that there is a train in the block. Let him then proceed with such caution as to have his train under proper control.

But even the absolute block system is defective as a protection against rear collisions until the element of human fallibility has been eliminated.

The effort to eliminate human agency begins with the manipulation of the signal at the entrance of the block. If this signal is under the control of the operator at the outlet of the block there is one mind less to make a mistake, and this is sought to be accomplished by the "manual controlled" system. But we have also to guard against the mistake of the operator at the outlet of the block. This man has to determine that the block is or is not clear, and then to control accordingly the display of the signal at the entrance. He must not only know that an engine has passed out of the block, but that every car of its train has also passed out. Even if he be correctly informed that the block is clear, there must also be a certainty that the signal at the entrance has been properly displayed. Yet another improvement would be attained by eliminating the intervention of this operator also. This has been experimentally accomplished by several devices actuated by the train, simultaneously operating a display of the signals required to block the interval which it is entering and to clear that which it is leaving. Indeed this effect can now be extended to the next block behind the train so that the engineer of a following train may thereby be informed not only as to the condition of the block ahead of him, but also as to the condition of the block ahead of that. It is also practicable to provide appliances which will prevent the signal from indicating that the block is clear so long as there is a car of the train left in the block, an intervening switch misplaced or a rail in the track loosened from its fastenings.

Here we seem to have reached the uttermost limits of the resources at present available for the avoidance of rear collisions, though it is possible to go a step further and prevent their occurrence through the misconduct or neglect of the engineer of a following train, by the introduction of appliances connected with the block signals which shall strike the engine gong, or blow the whistle, or apply the brakes, or even close the throttle valve on the following train, but these appliances have not yet reached such a stage of efficiency as to call for further notice.

To recapitulate what has been stated, the general adoption of the absolute block system would have prevented nearly every rear collision that took place between stations in 1892. But on perhaps 80 per cent of the mileage of this country the principal dependence for protection against such collisions is the flagman. Except on roads with very heavy traffic, the establishment of the absolute block system is impracticable because of the increased cost of operation consequent upon its introduction. On such roads the flagman must still be relied upon, and his usefulness will be greatly enhanced if he be put directly under the engineer's control by whistle signal, and if the engineer be required to rely upon the fusee to preserve the interval of safety for a following train.

The statistics show that rear collisions take place about as frequently at stations as between stations. Such collisions generally occur from the crew of the train standing at the station believing that the engineer

of the following train will approach cautiously, expecting the track at the station to be occupied, while in fact the engineer of the following train approaches the station fully confident that if the track were not clear the flagman would be out a proper distance. Here again the reliance is placed on the flagman with the same unfortunate consequences. The investigation of rear collisions at stations, or where the forward train was standing still, will show that in the most of them the flagman was in doubt as to whether he should go back or not. Perhaps the engineer had only stopped for a few minutes to inspect something about the engine, or at a water station where every man on the road ought to know that trains always stop—or, if at a regular station, then the train did not stop just at the usual place. Theoretically the flagman always goes back the prescribed distance whenever the train stops. In practice he only goes back to the proper distance when he knows that a train is following, or that he will have plenty of time to get back to his train, or that some official of the road has his private car attached. The remedies are the same as for rear collisions; either the absolute block system, or the engineer made responsible for signaling the flagman back. The variety of conditions under which it must be determined whether a flagman should or should not be sent to the rear can be seen by reference to the circular notice attached to this paper.

Another fruitful cause of rear collisions is misplaced switches. There are several remedies for accidents of this kind. In yards the responsibility for a rear collision should rest with the engineer of a following train. He should understand that he will receive no warning by flagmen, only by switching signals, and should always enter and pass through a yard with his train under such control that it could be stopped at least in its length. This should be insisted upon unless switching is forbidden on the running tracks through the yards. Switches not in yards should be provided with counter-weighted switch levers that can only be locked on the main line. When in use, a man would then have to be at the switch, and when not in use the counter-weight would bring the switch clear of the main line. Whenever a counter-weight switch lever is not used, a distant signal should be connected with the switch.

To guard against cars being moved out of a siding so far as to foul the main line a derailing device should be placed at the clearance post.

Butting collisions are about as frequent as rear collisions, yet they are much easier of prevention. No two trains, proceeding in opposite directions on the same track, should never meet anywhere except at a siding. If the standard code is strictly followed this cannot happen, for it gives the absolute right of track to all trains in one direction. This can only be varied by special telegraphic orders, and if the meeting point is correctly given the trains must meet at that point. Where the standard code of train rules is observed a butting collision can not occur between stations, except through the carelessness of the train dispatcher, or of the train crew.

Butting collisions do frequently occur at stations and from the same causes that rear collisions occur at the same places; because the train crew at the station expects approaching trains to be under control, and because the engineers of approaching trains do not have their trains

under control. The remedies are the same for the one class of collisions as stations as for the other.

A crossing collision should never occur. Either a crossing should be protected by signals and retaining switches as to prevent the possibility of collision, or every train should come to an absolute stop, with the engine standing at a safe distance from the crossing. In that distance a dangerous speed can not be attained at the crossing, and when a collision does occur the engineer whose engine struck the other train should be held solely responsible.

The derailments reported in 1904 were classified as follows:

		Percent of total particularized.
Defective rails	114	33
Defective equipment	15	20
Unobserved obstructions	15	32
Negligence in operating	44	15
Total particularized in per cent.	288	
Unparticularized " " per cent.	887	
Total reported	1175	

Particulars of derailments have only been obtained of about one-fourth of the cases reported. Of those particularized about one-third each have been caused by defective track and unobserved obstructions, while the remaining third was about equally divided between defective equipment and negligence in operating.

The reported cases due to defective track are classified as follows:

Broken rail	35
Defective switches or frogs	21
Rails spreading	14
Defective bridges or trestles	12
Bad track	11
Miscellaneous	11

104

Over one-third of the derailments due to defective track occurred from broken rails. In the majority of cases a broken rail means a badly worn rail or one of a section too light for the traffic.

The responsibility for a derailment from rails spreading or from bad track should be easily placed upon the proper shoulders, and derailments from defective switches, frogs, bridges and trestles are plainly due to lack of inspection, as also in the most of the cases classed as miscellaneous.

The derailments due to defective equipment were 15 in number, of which particulars are given of 65 or 55 per cent. divided as follows:

	On locomotives.	On cars.	Total.
Defective wheels	4	17	21
Defective axles	1	10	11
Defective trucks	-	10	10
Defective drawgear	-	0	9
Defective brake gear	1	8	9
Miscellaneous	1	2	3
Total	7	56	63

The number of derailments attributed to defective locomotives as compared with defective cars is greatly out of proportion to the number of each in service, but the total of the cases particularized is too small to draw any conclusions, except that the remedy lies in closer inspection.

The derailments due to negligence in operating were 163, of which particulars are given in 49 cases, or 30 per cent. as follows :

[illegible]

The switch accidents, as already mentioned in discussing collisions, can be largely reduced by the use of a counterweighted switch lever, which will prevent switches being carelessly left open on the main line. Two derailments of passenger trains were caused by derailing devices at crossings, and in each case a collision was probably averted.

But one derailment is reported from an open drawbridge.

The derailments due to unforeseen obstructions were 165 in number, in which the particulars are given in 95 cases or 57 per cent, as follows :

[illegible]

The principal single cause, cattle on track, could be prevented by fencing. In the majority of the other cases the remedy is closer inspection. The other train accidents, which were neither collisions nor derailments, were 95 in number, of which particulars were given in 42 cases, or 44 per cent, as follows :

Locomotive explosions	-	-	-	-	-	-	-	-	-	-	-	18
Other accidents to locomotives	-	-	-	-	-	-	-	-	-	-	-	9
Miscellaneous	-	-	-	-	-	-	-	-	-	-	-	15
												42

Some of the train accidents as above classified were more or less involved either as a cause or effect with bridges and fires, and it is therefore somewhat interesting to treat of them as so related.

In 21 cases of derailment caused by condition of bridges, the particulars are as follows :

Bridge damaged by flood	-	-	-	-	-	-	-	-	8
Bridge damaged by fire	-	-	-	-	-	-	-	-	5
Bridge otherwise defective	-	-	-	-	-	-	-	-	6
Insufficient bridge signals	-	-	-	-	-	-	-	-	2
Due to insufficient inspection	-	-	-	-	-	-	-	-	21

Injury to bridges by train accidents.

[illegible]

In seven derailments and one collision, the trains were thrown off of a bridge, so that it may be said that in these eight cases, and in the twelve cases of injury to bridges by derailment and by collision efficient guard rails would have prevented the resulting damage.

As with bridge accidents so it is with accidents by fire, they may be either a cause or an effect.

In 61 cases of fires on trains, of which particulars are given, the causes were as follows:

	Pass.	Freight.	Total.
Rear collision—engine set train afire - - -	5	21	26
“ “ caboose stove - - -		2	2
“ “ lamp in horse car - - -		1	1
“ “ lamp in baggage car - - -	1		1
Butting collision—engine set train afire - - -	2	3	5
“ “ stove in express car - - -	1		1
Crossing “ stove in passenger car - - -	1		1
Derailment—stove in passenger car - - -	11		11
“ “ fire from engine - - -	1	3	4
“ “ contents of freight car - - -		3	3
Illuminating gas - - -	1		1
Case of gasoline dropped from preceding train - - -	1		1
Total - - -	24	33	57
Set on fire by locomotives - - -	8	22	35
Set on fire by stoves - - -	13	2	15
Set on fire by lamps - - -	1	1	2
Miscellaneous - - -	2	3	5
Total - - -	14	33	57

The remedy against fires caused by locomotives is plainly to reduce the number of collisions, and especially of rear collisions; so that against fire caused by stoves is to replace them with safer heating apparatus.

In general, the diminution in railway accidents must be brought about by increased efficiency in appliances, in regulations, in discipline and in inspection.

Under the head of appliances experience shows that rear collisions between stations can be greatly diminished by a more extended use of the block system, that many collisions are caused by switches left wrong which could not occur with counterweighted switch levers, that cars could not be moved out of sidings if prevented by derailing devices, that derailments at switches could be prevented by the use of safety switches, that guard rails on bridges and trestles would often prevent derailments and the consequent injuries to trains and structures, and that steam heating apparatus should replace stoves in passenger cars.

As to efficient regulations the standard code of train rules of the American Railway association is the result of the experience of those best qualified to frame such a code. Its general adoption has done much to bring about a uniformity of practice throughout the country, and with it to reduce the possibility of accidents due to trainmen changing from one road to another. As already suggested it would be an improvement for the engineer of a train to be required to make use of the fusee as a rear protection, and also to put the flagman more immediately under his direction.

The association code of rules for the movement of trains by telegraphic orders is an admirable piece of work, and has been even more generally adopted than the code of train rules. Where it is rigidly enforced a butting collision could only arise from the carelessness or recklessness of an employé.

There is need for similar standard codes regulating the conduct of employés in other matters incidental to the movement and handling of trains.

Perhaps one of the greatest fields for improving the train service in this country is that of discipline. The lack of unquestioning obedience to authority and of prompt compliance with established rules is at the bottom of more railway accidents than every other cause put together. This is rarely shown in the newspaper accounts, indeed it is only ascertained in most cases by a thorough investigation of all the circumstances. The facts as to the chances taken daily by reckless or indolent or careless employés in flagrant disregard of carefully devised regulations and of even the common dictates of prudence would, if generally known, do much to bring about an improvement in this respect. Public opinion would then hold employés responsible in many cases of accident where now there is a senseless or unjust abuse of corporations and officials. It is now so difficult to get a jury to look upon the infraction of a train rule by an employé as a crime that railroad companies content themselves with discharging men in such cases, who are then free to find employment elsewhere and to repeat the offense, and the attempt to keep a record of such offenders is denounced as odious blacklisting. Railroad managers have to contend against a growing resistance to restraint and reproof, and a disposition to oppose the interests of the company in matters which do not affect the personal interest of employés either one way or another, thus rendering it difficult to enforce discipline even where the safety of life and property are involved. Their efforts need to be reinforced by public opinion, by the press and by the courts, for strict discipline and prompt obedience to orders under conditions of exposure to weather, to danger, and even to death, are as necessary and as meritorious in railroad service as in military service.

In this connection railroad managements are themselves open to censure for inefficient supervision of train service. They have the lesson to learn which centuries of experience have taught to the creators and leaders of military organizations; that it is one thing to give an order, and another thing to see that it is enforced. Close inspection ensures efficiency of appliances of regulations and of discipline, and this is greatly lacking even on the best railroad systems in this country. Money expended in salaries for men to do nothing else but see that rules are observed, is looked upon as wasted. What is wanted is not spies nor detectives, but a staff of inspectors reporting directly to the general manager outside of any department officials. This is what is done in armies, and the positions are held in honor and filled by the best men on the general's staff. With such a system of inspection, the management does not have to wait for a bridge to fall down to learn that it was rotten, or for a score of lives to be lost in an accident to know that train rules were habitually disregarded.

As stated in the beginning of this paper, the personal injuries aris-

ing from railway accidents have attracted the attention of state railway commissions rather than the causes of such accidents, and some reference may therefore be made to this aspect of the subject.

The classes of persons suffering injuries from railway accidents are passengers, employes and trespassers, as well as a fourth class of persons that cannot properly be included under either of these heads. I have therefore prepared some figures as to the number of persons injured by train accidents in 1892, which have been already analyzed as to other causes. Classified as stated, the results are as follows. The total number of persons injured in these accidents were:

Killed	-	-	-	-	-	-	-	-	-	664
Injured	-	-	-	-	-	-	-	-	-	2,252
Total	-	-	-	-	-	-	-	-	-	2,916

divided as between:

Passengers	-	-	-	-	-	-	-	-	-	1,150
Employes	-	-	-	-	-	-	-	-	-	1,648
Trespassers	-	-	-	-	-	-	-	-	-	85
Miscellaneous	-	-	-	-	-	-	-	-	-	33

These casualties resulted from:

Collisions	-	-	-	-	-	-	-	-	-	1,458
Derailements	-	-	-	-	-	-	-	-	-	1,379
Other accidents	-	-	-	-	-	-	-	-	-	79

About one-third more passengers were killed than employes. The principal causes of personal injuries were:

	Killed.	Injured.	Total.
In rear collisions	116	462	578
In butting collisions	200	525	725
Derailement from broken rails	15	196	211
Derailement from cattle on track	30	98	128

There were 61 accidents, in which the trains took fire, and from these fires 10 passengers and 3 employes were killed and 13 passengers injured.

The resulting injuries from train accidents vary of course greatly with the number of persons exposed in each, while serious loss of life occasionally results primarily from irregularities which are themselves of but little consequence and of rare occurrence. The appended table (Table C) gives separately each accident reported in 1892 which resulted in ten or more persons being injured. A derailement on a high bank caused by a broken rail resulted in 2 deaths and 34 injured. Another to a work train, with 300 men on board, also happened on a high bank, plunging the train into a river, drowning 3 and injuring 30. Another derailement caused by a trestle giving way, after having been weakened by a flood, resulted in drowning 7 and injuring 30. A passenger train ran past a block signal and plunged into the rear of another passenger train, killing 12 passengers and injuring 23. A butting collision, growing out of the mistaken reading of a new time card, led to the death of 5 and the injury of 43 others. A freight train ran past a block signal into the rear of a passenger train, killing 9 and wounding 32.

TABLE C.
SERIOUS ACCIDENTS—PERSONAL INJURIES.

	KILLED.			WOUNDED.			TOTAL.			REMARKS.
	Pas.	Em.	To.	Pas.	Em.	To.	Pas.	Em.	To.	
Butting Collision.	1	2	3	6	2	8	7	4	11	One train standing at station: other approached not under control.
Derailment	2	2	2	29	5	34	31	5	36	Broken rail on high bank.
"	2	2	2	12	12	14	14		14	Broken rail, sleeper overturned and two burned up in it.
"				8	3	11	8	3	11	Janney-Miller drawhead pulled out—car struck coal chute.
"				8	3	11	8	3	11	Broken rail.
"				13	2	15	13	2	15	On high bank, unexplained.
"				12	1	13	22	1	13	Road bed weakened by rain.
"				15		15			15	Broken driving axle.
"		2	2		15	15		17	17	Work train, broken wheel.
"		3	3		30	30		33	33	Work train, down bank into river, 300 men on train, unexplained.
Butting Collision.	1	5	6	12	3	15	13	8	21	New time card, frt. man forgot change of pass. train.
"	8	1	9	20		20	28	1	29	Pass. train backing on trestle, sleeper fell over, frt. ran into it, pass. condtr. disregarded orders.
Derailment.	6	1	7	25	5	30	31	6	37	Trestle weakened by flood, train turned over and people drowned.
"		3	3		7	7		10	10	Culvert weakened by rain.
"		1	1	11		11	11	1	12	Cattle, engine, tender and sleeper in river.
Rear Collision.	12		12	23		23	35		35	Harrisburg, first pass. train stopped, second ran past block.
"	3		3	7		7	10		10	Pass. train standing at station, frt. train not under control.
Butting Collision.	4	1	5	43		43	47	1	48	Pass. and Excursion, new time card, excursion condtr. and engr. mistook time it took effect, thought P. M. when it was A. M.
"	1		1	3	6	9	4	6	10	Pass. train condtr. careless in examining junction register.
Collision.					20	20		20	20	Freight and work train, unexplained.
Derailment.				13		13	13		13	Rails spread, pass. car turned over.
"				5	7	12	5	7	12	Defective switch wro't iron lug on switch rail broke.
"		5	5	25		25	30		30	Work train, cattle.
"		7	7	6		6	13		13	On high trestle, fell over, unexplained.
Side Collision.				12		12	12		12	Car on side track, passenger engine struck it, pass. cars turned over.
Derailment.	2		2	10		10	12		12	Misplaced switch, car turned over.
"				12		12	12		12	Engine ran into train shed too fast, over butting block into people on platform.
"		2	2	8		8	2	8	10	Car derailed and rolled down bank.
Rear Collision.				20		20	20		20	Empty cars let down grade at station by hand brakes, lost control and ran into rear of pass. train which was standing.

TABLE C.—CONTINUED.
SERIOUS ACCIDENTS—PERSONAL INJURIES.

	KILLED.			WOUNDED.			TOTAL.			REMARKS.
	Pas.	Em.	To.	Pas.	Em.	To.	Pas.	Em.	To.	
Derailment.	4		4	13		13	17		17	Fell through trestle weakened by freshet.
"	2		2	16		16	18		18	Mixed train, frt. car door fell off, derailed pass. car fell down bank, turned over 2 persons standing beside track.
"				13		13	13		13	Sleeping car turned over.
Rear Collision.	9		9	32		32	41		41	At station frt. train ran past automatic signal.
Butting Collision.		9	9		4	4		13	13	Work train in time of passenger train.
"	3	8	11	7	1	8	10	9	19	Condr. and engr. frt. train on side track asleep, train passed, they thought it was pass. train
Derailment.		4	4	18	4	22	18	8	26	Loose rail, fastenings removed maliciously.
Butting Collision.	5	3	8	12	6	18	17	9	26	Agt. had order to hold frt. train but thought it was annulled by subsequent order.
Derailment.	1		1	10	1	11	11	1	12	Defective switch, car overturned.
"		2	2	14		14	14	2	16	Broken rail.
Rear Collision.		1	1	20	2	22	22	3	23	Pass. train ran into rear of gravel standing on main line. Engine had gone to station for coal. Flagman asleep in caboose. Pass engine thrown down bank.
Derailment.	2		2	10		10	12		12	Pass. car down the bank and turned over.
"	1		1	13		13	14		14	Broken car wheel, train down bank, 2 sleepers in trestle.
"				11		11	11		11	High wind, four cars blown off, engine left on track.
Rear Collision.	1		1	14		14	15		15	Pass train, unexpected stop with rear of train 150 feet outside pneumatic signal.
" "		7	7		5	5		12	12	Freight train ran into caboose of wrecking train, car afire, 3 burned to death.
Butting Collision.		4	4	9	1	10	9	5	14	Pass. and freight train.
Side "				5	7	12		5	7	Engine and 2 cabooses taking siding, struck by pass engine.
Derailment.				25		25	25		25	Broken rail, 5 pass. cars ditched.
"	2		2	15	2	17	17	2	29	Pass. car down bank, cars took fire, 2 cars burned up.
In 50 Accidents.	30	38	68	257	33	290	285	71	356	
Total reported.	133	472	605	1025	1166	491	1158	1638	2796	

These examples are given to show that as any class of collision or derailment may result in great loss of life, in seeking a remedy our attention should not be so much attracted to those which for this reason have a tragic interest as to those causes which investigation shows to have been most abundant in accidents. So far as information may be gained from the train accidents of 1892, but few of them can be attributed to causes beyond the control of man. In most of them the remedy is to be sought in more efficient appliances, regulations, discipline and inspection.

APPENDIX.

RULES GOVERNING FLAGMEN.

SAVANNAH, FLORIDA & WESTERN RAILWAY COMPANY, CHARLESTON & SAVANNAH RAILWAY COMPANY, BRUNSWICK & WESTERN RAILROAD COMPANY, ALABAMA MIDLAND RAILWAY COMPANY.

OFFICE GENERAL MANAGER,
SAVANNAH, GA., Oct. 25, 1890. }

*Circular No. 2.***To Flagmen.**

Your attention is hereby called to the rules which prescribe your duty under the different circumstances in which you may be placed.

ON PASSENGER TRAINS.

No. 1. At regular stations noted on schedule as a stopping place for that train, and standing at the usual place for it to stop, See Train Rule 229. If your train stands over five minutes, you must go back with danger signals and protect your train, as provided in Rule 99.

No. 2. At regular stations noted on schedule as a stopping place for that train, but not standing at the usual place for it to stop. This is an unusual stop, and you must comply with Train Rule 96.

No. 3. Stopping at stations not noted on schedule as a stopping place for that train. This is an unusual stop. See Train Rule 96.

No. 4. Stopping for wood or water between stations. This is an unusual stop, to be governed by Rule 96.

No. 5. Stopping between stations for engineer to examine something about his engine. This is an unusual stop, and you must be governed by Train Rule 96.

No. 6. Stopping between stations to pack hot boxes. This is an unusual stop. You will be governed by Train Rule 96.

No. 7. Any other stop between stations. See General Manager's Order No. 300, also No. 299, which reads "all other stops must be considered unusual stops." You will be governed by Train Rule 96.

FOR FREIGHT TRAINS.

No. 8. At regular stations not noted on schedule as a stopping place for that train, and standing at the usual place for it to stop. You will assist the conductor in shifting switches, discharging freight, etc., but if the train is delayed twenty minutes beyond its scheduled leaving time, you will be governed by Train Rule 97.

No. 9. At regular stations noted on schedule as a stopping place for that train, but train, overlapping switch. You must consider this an unusual stop, and you will comply with Train Rule 97.

No. 10. At regular stations noted on schedule as a stopping place for that train, but not standing at the usual place for it to stop. This is an unusual stop, and you must comply with Train Rule 97.

No. 11. Stopping at stations not noted on schedule as a stopping place for that train. This is an unusual stop, and you must comply with Train Rule 97.

No. 12. Stopping for wood or water between stations. This is an unusual stop, and you will be governed by Train Rule 97.

No. 13. Stopping between stations for engineer to examine something about his engine. See General Manager's Order No. 300, also General Manager's Order No. 299. The above stop is an unusual stop, and you must be governed by Train Rule 97.

No. 14. Stopping between stations to pack hot boxes. This is an unusual stop, and you will be governed by Train Rule 97.

No. 15. Any other stop between stations, cause unknown to flagman. See General Manager's Orders 299 and 300. Stops of this character must be considered unusual stops, and you must be governed by Train Rule 97.

These instructions do not relieve the conductors or engineers from the responsibility which the rules prescribe. Your attention is called to Train Rule 47, and when the signal is given for flagman to go back, the warning must be immediately obeyed.

When engineers throw off lighted fuses, as per General Manager's Order No. 300, you will understand that it is his intention to stop, and you must be prepared to go out immediately with proper danger signals.

At night you must remember to comply with Train Rule 230 as to use of fuses.

Never forget that you are placed at the rear of the train to protect life and property, and that it is in the darkness of night, in fogs and in storms, that your prompt attention to duty is most valuable.

It is better for your own peace of mind that you should get wet or be left on the road, cold and hungry, than for you to see life lost, perhaps your own friends mangled and crippled, or engines and cars broken up in a collision through your own carelessness or laziness, or because you did not go back when you knew that you ought to.

To Engineers and Conductors.

Your attention is called to this circular, see that flagman understand it and act upon it. Pay strict attention to what is required of you as to giving whistle signals or verbal instructions to flagmen; also as to dropping fuses in ample time when you know in advance that you intend to stop at an unusual place. You will thereby assist your officers in protecting your own lives, as well as the lives and property which it is your duty to protect. You will also add to the reputation of the railroad company which employs you, and in which, I believe, that you take as much pride as I do.

H. S. HAINES, *General Manager.*

INTERNATIONAL AND INTERSTATE RAILWAY ARRANGEMENTS.

GEORGE R. BLANCHARD, COMMISSIONER CENTRAL TRAFFIC
ASSOCIATION.

To speak to the subject of "International and Interstate railway arrangements" is to consider the best agencies and greatest advances of modern civilization.

It is often said of persons that to know them we must live with them. This is as true of nations as of persons and communities. The peoples of the earth know each other better since they live more with each other through the modern facilities of railway and steamship transportation.

The successful practical uses of steam which solved the doubts of its experimental period revealed not only a new carrying power, but a new force in the industrial and political movements of nations which has now brought the remotest peoples together and established new fraternities of commerce, art, cordiality and thought. In all these respects this world's fair is a transportation trophy. Steam has produced esteem. We can perhaps best appreciate its values by suggesting that were the intercommunications of persons and property to revert today to the agencies of the ox, the mule, the horse, the canoe and sail—aye, even to the canal boat, society would return to undesirable conditions. Especially is this true in view of the increase in the world's population and the countries which awaited and invited settlement and development. Man retains or returns to or near the first estate of the Indian if he is deprived of the stimulus of others who compete with him. Stanley found such a society in what I may call its pre-transportation period, in middle Africa.

Even as a citizen of civilization the contented villager, uninspired by the activities beyond his sluggish little frontier, unspurred by the ambitions which proceed from human contact and absorptions from advancing men, and trading only in small wares in small ways, is not an inspiring practical personality, however much he may adorn romance and verse with illustrations of contentment and simplicity.

When he is transported out into the world and meets its strifes and needs he often becomes a force which would have remained as dormant as the long sleep of steam had he, like it, remained unproven and unenlarged. The pastoral state is not the type which a nation would transfer to its seal as emblematic of its hopes or purposes. Such would not replace the eagle of America or the lion of England, which tell other nations that their meanings are to soar and contend. A nation in which no larger ambitions existed than those of the hamlet would not lead other nations, unless backward. We would not choose

interior Asia or the upper Amazon to-day to exemplify at the world's exposition the desirable conditions and purposes of existence. We visit their nomadic peoples as curiosities—as human snails and crabs. They absorb progress from us. We do not feel that their primeval or barbaric simplicity and content are to be emulated. We would not even accept ancient Greece as our type with all its learning. Rhode Island, plus steam transportation and cotton mills, has done more and represents a higher altitude of existence and benefits.

Rome was in no sense as imperial as London, Paris, New York or Chicago, and is remembered most for the extensions of its power into new domains by achievements of arms. Even its conquests were fleeting glories, unless an enlarged commerce followed them, which meant enlarged interchanges and riches through transportation.

Venice was more beautiful because its roadstead and canals floated the loading and unloading argosies of trade than because of its Doges or their palaces or fêtes. The varying volume of the first made the great or lesser grandeur of the latter, until, its commerce lost, it went into decay. Amsterdam and the Dutch traders pushed their dominion by ships. Spain's greatest glory today is that its great navigator reached America, attached new dependencies to its rule, and opened new fields of commerce. That was an achievement of transportation by caravel. But for England's advances from the forest rites of the Druids to the forests of its masts on the seas and in the ports of the world, its Martello towers would still be its telegraphs; the sluggish barges on the Thames, and its coasts and canals would be its locomotives; the horses its telephone, and peat and rush its electric and gas lights. An England constituted only of its home islands would not stipulate the rate of commercial exchange to the world today. It is great because it transported itself away from home, as individuals become great for the same reason. The fact that its first locomotive was used at a colliery meant first the stimulation of local resource and domestic advancement. Those being assured, it went from England to other countries on its tour of development as did its parent country, and it was the most important emigrant of history. Meanwhile the adoption of steam by one nation became the necessity of others, whether regarded as an instrumentality of peace or war, and thus went its progress, pageantry and power.

The "Puffing Billy" of 1813 puffed its way swiftly over the world. It reached the United States in 1827, Austria, Hungary and France in 1828, Germany and Belgium in 1833, Russia in 1838, Italy and the Netherlands in 1829, Denmark in 1844, Canada in 1847, Spain in 1848, Mexico in 1850, Sweden and Peru in 1851, Chili in 1852, Norway and India in 1853, Portugal and Brazil in 1854, Egypt in 1856, Turkey and Colombia in 1860, Paraguay in 1863, The Argentine Republic in 1864, Venezuela in 1866, and Uruguay and Greece in 1869. Greece was the last of these, with all its olden Athenian traditions of glory and learning, being 49 days behind Uruguay, where its whistle was almost within hearing of the Patagonian and the penguin. Following its introduction in the years stated came more universal, social, commercial, economic and artistic ambitions. It would be interesting, did time permit, to trace the more rapid developments of nations from the advents of the locomotive and the screw within their borders. The student of the

history of political economy will find very much in it to interest and instruct him. Especially will its contrasts arrest his attention and detain his memory. Napoleon was defeated at Moscow by a lack of transportation facilities, now abundant in Russia. A locomotive might therefore have changed the map of Europe. We girdled the Confederacy by steam, and secession might have defeated union but for its aid. Gordon asked that railways supplement in Egypt the uncertain fullness of the Nile, and at the same time neutralize the hardships of its deserts. The Trans-Caspian line is being built largely as a military measure, and in nations where standing armies exist railways are located and constructed with reference to the national defense as well as commercial relations. It is a condition of the subsidies to the enormous steam peace marine of England that its capacity and power may be utilized for war, if exigencies require. I need not cite more war instances, but land and sea locomotives have achieved their greater results as engines of peace, and as such we prefer to salute them.

The bond of extended mercantile interest are stronger than international treaties. Commerce is the truest diplomacy, and merchants are its ambassadors. When two locomotives or steamers stand at the borders of nations or states waiting to intermingle peoples and their goods, they are stronger forces than contending statesmen on opposite sides of state issues, because they represent progress, equity and necessity. Therefore state-craft is pushed by the locomotive until there is no civilized state or nation now so strong that it can isolate itself commercially and deny railways passage across its frontiers.

As one illustration German railways have over 200 tariffs in connection with railways outside its boundaries, and this equalization of places and districts is many times multiplied nationally and internationally in the states of the world.

The Victoria, cantilever and suspension bridges and the Port Huron tunnel unite Canada and the union commercially as well as physically. Mexico is as much in the union today commercially as are some of our territories. The St. Gothard and Mont Cenis tunnels attest the progress made in the commercial fusion of nations which but a few years prior were antagonistic. The growing sentiment of England, France and continental Europe in favor of the tunnel under the English channel is another instance of the preponderance of commercial over mere political considerations. This great undertaking has to this time been negatived principally upon military grounds touching the national defense and not as a restriction of commerce. England feels that with the tides encircling it, and its canals and railways interlacing its land, its commerce cannot be restricted by the prohibition of a tunnel. Insular geographically, all lands of the world are its shores commercially. Despite the military view, however, the time will come when the locomotive will start people at Rome to carry them to London under the sea as well as beneath the Alps, and it will be a truer conquest by greater captains and forces than when Italy first came to Albion!

A more recent estimate of the international value of railway intercommunication is the endorsement by the seventeen states composing the Pan-American congress of 1889, of the project to unite the railways of North and South America; an achievement which in the amply fortified opinion of W. E. Curtis, the accomplished secretary of the

Pan-American congress, is easier of accomplishment than the engineering difficulties encountered and overcome by railways in Colorado and Oregon. I cannot refrain from saying, as an American, that the discontinuance by our government of the appropriation of \$65,000 per year which had been made for three years under the former administration to perfect this survey, but discontinued by the last congress was a step backward in the development of American commerce and the progress of peoples closely related to ours. The survey was being paid for by the nations transversed in proportion to their populations, and to the credit of the poorer states of South America be it said, that they assented to the choice of American engineers for the work and never defaulted in their payments. With our larger surplus and interest in the question, we produced the default and delayed the work. Our experience with Mexico justified us in pushing this larger extension. The city of Mexico was reached by rail from the states in 1884 and our commerce with the land of the Montezumas, which in 1860 was in the ratio of 1.6, rose to nearly 19 in 1888, four years only. This fact alone justified at least the survey and the valuable report which would have accompanied it. Less than 1600 miles will reach the Panama railroad, and 400 miles more will unite our States-Mexican system with some of the South American rails, and less than 4000 miles would connect us with Buenos Ayres. The South American powers have granted liberal concessions under which railways are rapidly extending northward from the river Plate to Bogota. When completed to the Isthmus they will intersect 600 millions of internal commerce, and if it grows as with Mexico, who can estimate what traffic will follow those longest railway lines of the world after their union? They will traverse immense groves of lumber, historical mines, millions of acres of coffee fields, the vastest grazing and arable acres of the world, and forests of manufacturing chimneys as their locomotives roar through the lands of Bolivar and Columbus and Pizarro and Washington. In this connection the great work of the great state secretary—Blaine—should not go unremembered.

While I am speaking for railways I must say a word for its sister interest, the steamship. Railway and steamship are as often allies as rivals. It is in acting together that they have given every merchant of Europe and America through rates from continent to continent which possess greater elements of cheapness and security than the first bills of lading issued between New York and Chicago by rail or canal and the lakes.

Can a railway policy which has developed internal resources beyond precedents in both North and South America become paradoxically unwise when applied to our foreign commerce? In 1858 our flag covered 71% of all the values we imported and exported.

This was lowered to 14½% in 1888, so that our commercial flag is now much below half-mast. As our national independence in all other respects became assured, our dependence upon foreign steamship and sail carriers became greater. Standing first in the wealth of nations and sending and receiving more freight than any other sender or receiver, we owned less vessels to carry our own tonnage. How can this be national wisdom? We had in 1889 but 56 American steamships in international trade represented by \$15,000,000 capital and 158,000

tons, while England's merchant fleet was 5,196 steamers with 7,500,000 tons and represented by eleven hundred millions of capital. We paid foreign vessels for freights in 1888, \$170,000,000 and to our own ships only \$29,000,000.

It is the irony of commerce that we raise vast crops and send them to the Atlantic in our cars to there transfer their contents to carriage under foreign flags, whose freight charges we pay either directly in money or indirectly in decreased sale prices.

Since June, 1873, when we abandoned the policy of subsidies, England has paid \$225,000,000 to its vessels avowedly to enlarge its trade. The Cæsars assisted the triremes of Italy to reach Great Britain with the products of the earlier Mediterranean civilization, and England seems to have made this its trade legend and policy. It has the smallest home domain but the largest commerce, and Threadneedle street thereon fixes the rates of exchange which govern finance. It bought the Suez canal to touch the mercantile pulses of the east. It lends its credit to Indian railways and irrigation canals, and the influence of Manchester and Liverpool are thus made greater than Waterloo and Sebastopol.

If when our nation assisted internal transportation it had adopted a broad creed for aiding external international transit, millions more would now be in our treasuries; we would have firmer hold upon the world's markets, would exercise more power, and command more legitimate instrumentalities of national riches and security. We stride with our internal marches, but we limp in the maritime commercial procession. We should prudently but fearlessly award some of our unprecedented surplus to develop and retain external commerce. As Admiral Porter said:

"What would \$10,000,000 a year be to this country, if given by Congress to help build up our commercial marine? It would more than return an equivalent in customs dues."

Canada gave vast bounties to the Canadian Pacific railway to develop its route and in part to divert our trades as well as to develop it through a system of connections with our lines. Why should not this rich nation give richly to retain its trades and establish new ones? England's shibboleth is "Free Trade," but no nation so well protects its carriers. Our tocsin has been "Protection," but no nation so neglects its ships. We wisely assisted the Eads jetties, and thereby deepened not only a river but our national commerce. We spend vast annual sums upon rivers and harbors, some of which money is charged to dewy creeks with apocryphal channels. Why not give our ships upon the open oceans some encouragement, and be less oppressive of the railways? Our capitalists and designers and our younger Footes and Farraguts are as ready with money and brawn and bravery to become the allies of our international commerce as are our capitalists and engineers to assist internal growth.

Our railways and their steamship allies have proved an international benefit in other respects. They have reduced the rental of lands to farmers in Europe and cheapened the grain and meat foods of the foreign poor as well as our own. They have assisted famine in Ireland, and recently thousands of tons of donated Iowa, Kansas and western

Grain followed the Geneva cross to feed the indigent Russians who tilled competitive wheat lands. I need not cite more instances.

Under the auspices of a great American railway the American flag has recently been uplifted above an American cargo by an essentially American president on a good ship built in Great Britain which had before floated the cross of England. Thus are railways and steamers acting together to achieve international commercial good. Together they have replaced the passport with the coupon ticket and the circular letter of credit.

It is fitting that any consideration of international railway arrangements should touch upon the relations between Canadian railway carriers and our own. When the interstate commerce act was passed it was with the full knowledge of our legislators that limitations contained in that law did not exist in the laws of Canada relative to its railway carriers. It was, however, the intent of the act that traffic passing between points in Canada and points in the United States and between points in the United States which passed through Canada enroute, should be governed by the conditions of the act, and so far as I am aware the Canadian carriers have given as much coöperation to the law, as to those classes of traffic, as have the American lines. It is a fair and just demand of United States railways, and it is conceded by those in Canada, that so far as they are bound by the terms and conditions of the act upon the competitive commerce which they transport, the same stipulations should apply to the same commerce when handled by the railways through Canada in so far as the laws of the United States can secure that result. In other words, while we favor the broadest international reciprocity, the nation should not grant conditions to the commerce of other countries when passing through our own, which will give them greater benefits than ours; or, if they cannot control or influence the action of our border nations in that respect, Congress should not apply conditions to American railways or the commerce passing over them, which place them at a disadvantage with foreign carriers and commerce.

I come now to consider briefly our own state and inter-state development.

In his last message to Congress, George Washington advocated the James river canal and the policy of assisted internal waterways. The nation built the highway known as the national road from Washington to Annapolis. It was the courier of the iron road and gave path to the Cumberland and Conestoga wagons (which afterward became known as "prairie schooners") as iron rails did to the locomotive. The Baltimore & Ohio Railroad was afterward chartered on the same general route and received liberal aid from Virginia, Maryland and Baltimore. Pennsylvania assisted the Pennsylvania Railroad and its canals. New York State built the Erie canal in chain with our great lakes, and more wealth has poured through it than water. The national land grant to the Illinois Central railroad gave the deciding impetus to this great city and state. It is but 81 years since the Dearborn massacre occurred on the site of Mr. Pullman's Chicago residence. The 3,000 miles of land between the Missouri river and the Pacific ocean were undeveloped for many years, except by pioneers whose wagons were their forts as well as their homes, until the nation gave its credit and

charter to the Pacific railways in 1862, and it was opened in 1869, more than seven years before the time allotted by Congress for its construction.

Abraham Lincoln fixed their point of junction and testified his opinion of their national value.

Our townships, municipalities, states and nation thus acted wisely to financially assist various internal rail and water lines, because transportation facilities must precede the actual needs of trade. The traffic must grow to them, and as commerce must "follow the flag," we must first send the flag.

Those truisms built railways in the waiting west before they could pay dividends and interest, but they paid instant and large returns to the purse of the commonwealth.

In the earlier stages of our railway construction, and growing out of the adverse interests and of states as they were then regarded, wrongs were done, impediments created and true growth retarded. When the New York & Erie railway was first projected, it was, as its name indicated, intended to run from New York city to Erie, Pa. A triangular state issue resulted. New Jersey declined to allow its rails to be laid across that state to Jersey City, and the terminus was for that reason fixed north of the boundary line of New Jersey, at Piermon N. Y., 23 miles north of New York city which was reached by water. The riots at Erie, Pa., which followed the attempt of the same railway company to enter that city will be recalled, and its lake terminus was transferred to Dunkirk, N. Y.

The projectors of the Baltimore & Ohio railway originally intended to build its line from Baltimore to the Ohio river at Pittsburgh, or, as President Garrett was fond of saying: "From the boldest indentation of the Atlantic to the union of the great water which form the greater Ohio."

The same hostility of the state of Pennsylvania which affected the Erie railway, diverted the B. & O. Company's river terminus to Wheeling, W. Va., around the southwest corner of Pennsylvania. This was the true interference with and hindrance to commerce which the constitution anticipated, and it occurred at a time when railroads were contending for commerce and improving facilities for its passage and enlargement. I could cite other instances in our own country, and yet more from the jealousies of adjacent military nations, but these suffice, and they are happily now of the past.

Through intermediate periods these jealousies changed. In later years when the Pittsburgh & Connellsville extension of the B. & O. Company was opened from Baltimore to Pittsburgh, President Garrett was hailed and banqueted in Pittsburgh as a veritable prince of deliverance. You remember local celebrations of this nature all over the country. Cities, towns, counties and districts, especially those having special productions, such as coal, stone, lumber, ores, etc., for a long time vied with each other to secure rather than repeal original and then competitive railway outlets. They offered them inducements of lands, cash bonuses, bonds, stock subscriptions, freedom of restriction of taxation, shop and station grounds, etc., etc., but when secured too often follows that oblivion of benefits and those abridgements and spoliation of rights and justice to which others of this congress as well as myself have earnestly referred in other papers. Liberality went too

far and in these respects the public interests are now more conservatively considered.

Originally it was intended that the earlier railways should simply be iron highways assisting or replacing roadways or waterways, and upon which any shipper might place his car as any one can put a boat upon a river, ocean, lake or canal, subject to a system of tolls for the services of the roadway alone, or the roadway and power. I possess interesting early tariffs of the B. & O. Company in which the various charges for tolls are set forth.

The owner of the car then presented his own bills to consignees for the aggregate of the tolls he had paid and his charges if he carried freight for others, and as is the usage by canal today.

Naturally as commerce grew, a multiplicity of such owners produced senseless rivalries, reduced individual earnings and resulted in confusion of movement, and the railways were solicited to assume the entire service, which they did. Then came—not swiftly at first—the contentions of towns and districts for carrying facilities, until localities as well as nations knew that transportation isolation or comparative disability meant commercial stagnation or retrogression, and our nation now possesses half the railways of the world.

You have often been told how in order to prepare the way of the locomotive, valleys have been filled, cities traversed on arches of stone and mountains leveled, wide streams bridged, tunnels arched through quicksands under waters, and pierced through eternal granites. The engineer's congress may well tell and be proud of the achievements of its great profession in those respects.

My purpose in repeating these trite things is to say, first, that in doing these great works no other calling has so fully engaged and so well rewarded the highest attainments and energies of men. Unlike the arts, steam had no examples. It was not a system of long creative evolution. It was an original study, and it has been conned, wrought and solved with a patience, brilliancy and security which entitle the projectors, builders and administrators to public gratitude. I can only measure what is due to them of public thanks and appreciation by asking you to imagine the beseechings which would go out tomorrow to such men if the morning found the railways of Illinois gone from sight. See how thousands are now affected by the delay of an hour or a day.

Multiply these suggestions of loss by the deprivations of the world, and let the whole picture excite a wider and more equal public justice. I think it would then be more generally conceded than now, that those who have done so much for others are entitled to have what they have done cordially remembered, and that the public privileges which they have widened should be met by some widening of corporate privileges instead of incessant restrictions.

Moreover, there is yet a larger sense in which railways have proven benefactors. They should not be regarded as having accomplished merely the best and quickest methods for moving persons and things. They have stimulated every other great modern facility of life. Railways have created as well as assisted communities wherein the activities and rivalries of life have compelled the adoption and use of all other modern facilities. Where ore and coal were hidden under unin-

habited forests are now Lord Bacon's "busy workshops," occupied with various fabrics and industries, avenues of warehouses, offices and homes, amusement places and libraries, hospitals, schools and churches and all the concomitant enterprises of busy localities. With these have come the telegraph; the electric light; the street railway; improved roads; municipal betterments; parks; sewers; improvements of adjacent farms, and the cheapening of all the needs and pleasures of communities.

But bear in mind that railways always went before these. After them came these enterprises and comforts. The railways fetched, carried, waited and developed. They often failed financially, but they went on as prime organizers of industry and society, and became the one continuing and cordial aid of the people in all their inlets and outlets of life and employment. They *must* be the friends of the people to be true to their own purposes. If they practice undue exactions, ore and coal remain undug, forests unfelled, fields unplanted, the home, village or city unbuilt. For selfish reasons, therefore, the railway is the friend and ally of mutual increase. If it gets too little compensation for its services its owners do not share the prosperity they create. They do not rebuild, improve, extend, substitute steel for iron, nor offer the highest standards of transportation facilities, safety and responsibilities for persons and articles carried.

Whatever be the misfortunes of the railway itself through bad management, lack of traffic or legislative compression, the railway always remains a public facility which is always and under every circumstance immeasurably greater and better than the best transportation conditions which preceded it. The present railway is better than the best stage coach, Conestoga wagon or Erie canal boat.

The repetitions of the conceptions and fulfillments which kept the railway following on the trail of the pioneer, constitute therefore the commercial history of the nineteenth century in all the lands where railway transportation has replaced the ox, mule and horse vehicles and the boat. Essentially in our country is this true. In less than 41 years from July 4, 1828 to May 18, 1869, this nation was belted with a railway from Chesapeake Bay to the Golden Gate, and the radiations of its trans-continental spine has ribbed out into thousands of interior towns, to every one of which they had brought in some measure such increase of welfare as no other causes gave the same places or districts.

The aggregation of these benefits indubitably made the power of the nation. They brought here the moneys of other countries to develop ours, and then we sold them the fruits of that growth. I need not detain you to tell the great story of the inception and growth of the carriage of our apples, cheese, flour, grains, meats, cottons, tobaccos, beeves, and later on the products of our looms and our harvesters and machinery, to foreign countries.

Moreover, the relatively narrow colonial band of industrial area skirting the Atlantic coast, almost like the strip of Chili between the Andes and the Pacific, widened under railway influence until now trade has no boundaries in this country but those of the flag. Distances are neutralized or averaged. The intelligent farm owner or laborer of Illinois and Kansas has received good rewards for capital and labor.

yet undersold in Europe the poorly paid hire which worked in the wheat fields of the Black sea.

All this has been done for constantly decreasing charges and better service. Railway economies and reductions of tariffs have pushed our products where they never would have gone. Two comparisons will suffice under this head. The reduction in railway rates and fares between the first and last years of the war measured upon the tonnage of the last year was equal to our war debt. It is shown that had the Pennsylvania railway company received last year the rates of the London & Northwestern railway, it could have advanced its annual dividend from 5 to, say, 20 per cent.

In our own country the equalizations the locomotive has wrought have become common-place. It has equalized locality and product. The climate of California has recently been described to me by one of its translucent minds: "As having days so fair that he could clearly see tomorrow and catch faint glimpses of yesterday."

We have the fruits of that climate on our eastern tables almost as soon as it is set before those who produce it. The orange of Florida, the watermelon of Georgia, the shad of Savannah, the potato of Bermuda, the strawberry of the Carolinas, the oyster and terrapin of the Chesapeake, the lobster and sweet corn of Maine, the halibut of Massachusetts, the pompano of the Gulf, the bananas and pineapples of Honduras, the white fish of Lake Superior, the peaches of Delaware, the celery of Michigan, the tenderloin of Chicago, the salmon of the Restigouche and the cranberry of Cape Cod meet on our tables in all states unastonished and fraternal. There are no north, south, east or west or seasons to them. The railway and its adjunct, the refrigerator car, have established new calendars, new siderial systems, equinoxes and geographies and new markets. With all its other attributes the locomotive is a purveyor who compensates for 20-minute stops for indigestion at way stations by a superb menu indefinitely rich and prolonged and digestible at the termini.

All articles are given a security of transportation passing usual knowledge.

There are through railway tariffs between 20,000 interstate points of the union, and coupon tickets and baggage checks and express facilities in indefinite numbers. The cases at law in the United States of default or overcharge by its carriers are estimated to be less than 1/1000 of 1 per cent. of the transactions involved. The security to persons is so great that life in a train is as free from risk of accident as in a hotel. But one passenger is killed or injured in every 1,600,000 persons carried. Dining cars, vestibule cars, automatic couplers, air-brakes, gas and electric lighting, trussed platforms, luxurious appointments and cheapness of charge distinguish the service over that of all other railway countries. The freight charges average only about 60 per cent. of those of Europe for a swifter service and larger carrying liabilities. The time for ordinary freight service London to Paris, about 300 miles, is longer than from Boston to Chicago, 1,000 miles, and the charges therefor average more. Every one of these things was accomplished without compulsion of law.

State ownerships would not have achieved all these results, and have not done so in the nations which own or control their railways. Espe-

cially in the formative period of the government would state ownerships have failed of such purposes. No nation shows the advance in the facilities, cheapness and expedition of railway service which our exhibits display, yet for none has government done so little, the Pacific lines excepted. Many of the governments of Europe have granted their carriers larger facilities and continued greater encouragements and acknowledgment of their obligations to transportation, than do the states and the United States. We have brought to our markets the riches of the world and made this the acknowledged Eldorado of earth. In this Columbian year we have done even more. We have gathered within our borders not only the results of our own advance as a nation, but we have brought the products of other nations here to be contrasted with our own. In the transportation building at the exposition can be seen the stages by which the genius and labor and capital of all nations have devised and furnished the means of intercommunication and interchange which every other department of the exposition bears willing witness to. No land of earth is so remote from Chicago that steam has not brought its wares and peoples here to vie in this industrial and artistic tournament. Whether it was the most delicate glass-ware or the Krupp gun for which transportation was desired, mattered not. All the carrying departments of steam were found ready, perfected and reliable to carry everything with like facility. Having brought material things together the carriers are now engaged in bringing more of the peoples of the earth to see the marvelous aggregation of their thought and toil. From the shuttle trains of the Illinois Central trains speeding backward and forward in this great city loom to the Exposition flyer, uniting New York to Chicago, with a speed never before achieved, there are conditions and strides of carrying perfection which in this as in every adjunct of this world's undertaking marks its superiority over its predecessors and establishes the standard for its successors.

It is needless to say that no world's fairs were ever held until steam transportation made them possible. Every department and adjunct of this fair is a transportation exhibit as surely as are the cylinders of the locomotives there shown, for they all exhibit the primary and essential services which steam carriage has performed for them. It will secure as well the return of property and persons to their abodes.

In concluding this swift review permit me to say that when this fair is ended in the dismantling sense, for it will never cease in any other, the world will go to its homes, desks and benches to con over and build upon the lessons it will teach and the suggestions it will more and more evoke and stimulate when reflection is free. So the transportation interests should study their futures. They have farther duties to perform in and between themselves and states and nations. They should study the papers here presented as well as the mechanical phases of the problem. They should consider the dignities of the relations between employers and employés; the care for the age and infirmities of faithful servants; the appliances which will make life and property entrusted to them yet more secure; in softening the asperities of competition; in surrendering some part of individual conviction and power to the average belief and the general good; in stopping the abuses of rivalry; in securing just rewards; in studying the due relations of carriers and legislation and in convincing the just-minded of our rights

and necessities ; in maintaining those rights ; in cultivating international carrying relations and courtesies ; in extending especially the American system of railways into districts and nations warranting their introduction, and, as Lord Macaulay says, so let it appear in the future, that we "have done most for civilization."

The presence of our world's fair guests may prove as important as the earlier advent of Columbus and Miles Standish to these shores. Like them the commercial onlookers in our gates come for discovery, not conquest. Shakespeare said : "Welcome ever smiles while farewell goes out sighing."

We look to these welcomes and farewells to incite a more intimate acquaintance, an increased interchange of the essential and luxurious arts to improve the qualities of manufacture and to cheapen fabrication, thereby promoting that more perfect intercommunication which means a closer international brotherhood, the wane of war and farther flights for the eagles of peace.

THE AMERICAN INTERCONTINENTAL RAILWAY.

WILLIAM E. CURTIS, REPRESENTATIVE UNITED STATES DEPARTMENT
OF STATE, WORLD'S COLUMBIAN EXPOSITION.

None of the topics under consideration by the late international American conference, except perhaps that of commercial reciprocity with the other nations of this hemisphere, have awakened so much interest among the people of the American republics, and in the world at large, as the proposition to connect the transportation system of North America with that of South America by an intercontinental railway. It is a scheme of enormous magnitude, but not so formidable to the energy of this age as was the construction of the old Cumberland highway between tide water and the Ohio river, or the Erie canal, or the Pacific railways of the United States at the time they were undertaken. The engineering difficulties are not so great as those which were overcome by the Denver & Rio Grande company in Colorado, and arguments can be advanced in support of the enterprise more forcible than those used by Thomas H. Benton in the United States senate in behalf of the transcontinental project of 1856.

The government of Mexico is pushing its railways southward with great energy, and the Argentine republic has been rapidly extending its lines northward until they have nearly reached the Bolivian boundary. Outside of these two countries railway construction has been local and intended only to furnish the productive communities of the interior access to the sea. Chili has a comprehensive system connecting the chief cities with the mines and the coast, and is now piercing a tunnel through the Andes to connect with the trans-Andine road of the Argentine republic and furnish direct communication between the two oceans. Along the west coast of Central and South America, from the Mexican

boundary to the limits of the populated section of Chili, is a series of parallel roads, constructed within the last quarter of a century, extending from the several seaports to the mining or agricultural settlements; and in the interior are a number of longitudinal lines now in operation that may be utilized as links in the great system proposed or valuable feeders for the support of an international highway.

There are now in operation in the republic of Mexico nearly eight thousand miles of railroad. There are five competing lines crossing the Rio Grande, and three furnishing transportation between the capitol to the ports of the gulf. The Mexican Southern has already reached as far south as the garden state of Oaxaca, and the new route across the isthmus of Tehuantepec is rapidly approaching completion under the direction of Mr. Corthell, a Chicago engineer, whose skill and energy have done much to promote the prosperity and advance the commerce of our neighboring republic. When this road is completed the Panama railway company will no longer dictate transportation rates between the two oceans, and the sailing distance between New York and San Francisco will be shortened two thousand miles.

In the Central American republics railway development has been slow, and most of the interior transportation is still carried on by carts and pack mules, but all of the chief cities are now connected by rail with the seaports, and existing lines are being gradually extended by both foreign and local enterprise. The present government of Guatemala has revived the plan of constructing a railway from the capital to the Atlantic coast which was unfortunately abandoned after the death of President Barrios eight years ago, and is now offering most liberal terms both in money and land grants to whomever will undertake the work. This project offers one of the most favorable opportunities for investment that can be found in all America.

Two important railway enterprises are being conducted by American companies in the republic of Colombia. Mr. Cherry, of Milwaukee, is rapidly building a line from the Pacific port of Buena-Ventura into the Cauca valley, which is the garden spot of that great republic and one of the richest sections in agricultural and mineral resources in all the world. It is the intention to extend this road to Bogata, thus giving the most populous and productive section of the country one outlet to the sea.

A Boston corporation represented by Mr. S. B. McConnico, under a generous subsidy and a concession otherwise favorable, is constructing a road from the ancient city of Carthagena, on the Atlantic coast, to the Magdalena river, which is the only thoroughfare for freight and passenger travel between Bogata and the rest of the world. Almost every ton of commerce the interior of Colombia has enjoyed since the conquest has passed up or down this stream, although its mouth is blockaded by sand bars which make the handling of freight difficult, dangerous and expensive. Years ago a canal was dug from the river to the harbor of Carthagena, one of the finest in the world, but it failed to serve its purpose and has been partially abandoned. The railroad, which is absolutely necessary to the progress and prosperity of the country, is progressing rapidly and will soon be completed, when the cost of transportation will be greatly lessened and commerce facilitated to a degree that will revolutionize the trade of the republic.

Venezuela has now 282 miles of railway in operation and 1240 miles either projected or under construction, extending from the northern seacoast to the interior of the country. The roads are being built by English and German capitalists under liberal subsidies from the government, and active work, which was suspended during the recent unfortunate revolution, has been resumed with energy.

There is a railway in Ecuador which extends 56 miles from Guayaquil into the interior, and a contract has recently been concluded between the government and a syndicate of French capitalists for its extension to Quito, the capital.

Two years ago what is known as the Peruvian corporation, composed of William R. Grace & Co., of New York and a syndicate of English capitalists, assumed the entire foreign debt of Peru in consideration for the transfer to it by the government of all the railways in the republic and the control of certain mines which have been celebrated for centuries and furnished much of the riches of the country, whose name was once a synonym of wealth and magnificence. The famous Oroya railroad, which was built by Henry Meiggs and has been considered the eighth wonder of the world, has been extended across the Andes to Cerro de Pasco, the mines from which the Incas drew much of their treasure; and other lines are being built to important inland cities and mineral sections of the country. A party of engineers has recently sailed from New York to make a survey for the extension of the Oroya railway to the head of navigation on the Amazon, which offers an enormous economical advantage in shipping the produce of the country to Europe and the United States over the present routes by way of the straits of Magellan or the Isthmus of Panama. The increasing demand for rubber, and the destruction of the forests along the lower valley of the Amazon which formerly furnished it, makes it necessary to secure some means of transportation from the new sources of supply which have been found in the eastern provinces of Peru, Ecuador and Bolivia.

During the last year the great railway of Bolivia which connects the port of Antofagasta on the Pacific with the mines of Huanchaca, 350 miles, has been extended 189 miles northeastward to Oruro, and gives the unfathomed riches of that Republic an outlet to the sea. Although this road, with a gauge of $3\frac{1}{2}$ feet, cost the enormous sum of sixty million dollars, and crosses the three great ranges of the Andes, it is paying an annual dividend of eleven per cent.

Railway progress in Chili has been rapid and profitable, and there are now in operation nearly two thousand miles of road, mostly owned by the government. Nearly every town of importance is reached by steam, and there is a series of parallel lines across the narrow strip of territory that forms the Republic from the northern boundary to the southernmost limit of population. The failure of the Baring brothers seriously retarded work upon the road that is to connect Buenos Ayres with Valparaiso, and postponed its completion several years, but the contractors are at work again, and it is expected that trains will cross the southern continent from ocean to ocean before the close of 1894. This road is one of the most daring and expensive undertakings of the age. Eight tunnels have been pierced through the backbone of the continent, their total length being nine and three-quarters miles, and

the cost of construction has been enormous. It is now but two days journey on mule back between the termini, and the last tunnel is being driven.

The Argentine Republic and Uruguay have suffered severely from the consequences of excessive enterprise, but with good crops and economy the financial condition of both countries is being rapidly restored. In the Argentine Republic 7,676 miles of railway are in operation, which cost \$346,000,000. Uruguay has 1090 miles, furnishing communication with the seaboard for all the principal cities and towns.

Brazil has 84 railways, aggregating about seven thousand miles, and the most of them are paying investments. The extension of several of the lines has been contemplated, but very little actual construction has been done during the last two or three years because of political disturbances and financial depression.

Steel rails have been laid almost one-third of the distance between Buenos Ayres and Bogota, and through the most difficult and least attractive portion of the continent—the Gran Chaco of the Argentine Republic. The northern terminus of the Argentine system is at Jujuy, 993 miles from the capital. The distance from that point to La Paz, the capital of Bolivia, is 500 miles. From La Paz to Santa Rosa, Bolivia, a line has been constructed 220 miles in length; from Santa Rosa to Cuzco, Peru, the ancient capital of the Incas, the distance is 190 miles; from Cuzco to Santa Rosa, Ecuador, along the famous highway of the Incas, is 880 miles, and from there to Bogota it is 590 miles. It is therefore 3,373 miles from Buenos Ayres to Bogota, of which 1,213 is already constructed; leaving a gap of 2,160 miles to be filled.

This line would pass through the great basin of the Andes, a land of fabulous mineral wealth and the source of the great riches of the Incas. Bolivia is undoubtedly the richest in its mineral resources of any of the South American countries, and has, probably, larger deposits of gold, silver, platinum and other precious metals than any section on the globe; but with the present transportation facilities it is deprived of developing influences, and the mines cannot be profitable worked without modern machinery. This machinery can never enter the country from the Pacific coast. Nothing can reach the mines or be brought away that may not be carried on the back of a mule or a llama. The mountains forbid it. But on the Atlantic side there is navigable water up the Parana river for ocean ships, for a distance of 1,700 miles. From the head of navigation it is only 700 miles to the farthest mining district in Bolivia, and about the same distance to the diamond fields of Brazil. The climate is a perpetual June, the soil is wonderfully productive, the ranges are capable of sustaining millions of cattle and sheep, the forests are full of the rarest woods and their botanical resources are inexhaustible. The sources of the Parana, the several branches of the Amazon, and the Orinoco, three of the greatest rivers of the universe, are not far distant, and furnish almost uninterrupted navigation.

The construction of an intercontinental railway was first publicly suggested by Hinton Rowan Helper, who, for the last fifteen years has lost no opportunity to create public sentiment on three continents in favor of the scheme. If Mr. Helper had lived two thousand years ago

he would have been the high priest of some popular oracle, or have been confined to a dungeon, as Galileo was, for striding in advance of his generation. He first became known in 1859 as the author of a famous book called "The Impending Crisis," which created a profound sensation because it predicted with remarkable accuracy the approach and the results of the great war between the states.

It was largely due to the efforts of Mr. Helper that a commercial commission was sent from the United States to Central and South America in 1884, and that commission was instructed to confer with the governments of the nations it visited with reference to the project. The suggestion was received with the greatest favor everywhere and the report of the commission recommended the calling of an international conference of the American republics to discuss that with several other equally important topics.

The conference met, and after due consideration adopted a report, which declared (1) that a railway connecting the American republics will greatly contribute to the development of their political relations and material resources; (2) that a work of such a magnitude deserves the encouragement and coöperation of all the republics; (3) that to insure the perpetual freedom of traffic, the road should be declared forever neutral, and that its uninterrupted operation shall be guaranteed by them all; (4) that it should be forever exempt from taxation, and that all materials and supplies, for its construction and maintenance should be admitted free of duty.

The report also recommended the appointment of a commission of delegates representing each of the American republics to superintend a survey to ascertain the best routes, the probable cost of construction and the amount of existing and prospective traffic, the expense to be divided among the several governments interested in proportion to their population.

The Congress of the United States accepted the recommendations of the conference without hesitation, appropriating \$65,000 as the share of this government for the first year's work, and authorizing the appointment of three commissioners to represent this country on the international board; Alexander J. Cassatt, of Pennsylvania, Henry G. Davis, of West Virginia, and Richard C. Kerens, of Missouri, were afterward named as such commissioners.

Two subsequent appropriations of a similar amount were made during the following years, but the last congress failed to recognize the value of the undertaking and refused to provide funds necessary to continue and complete the work.

The other American republics responded with enthusiasm, sent commissioners to Washington and appropriated their share of money to pay the expense of the survey according to their respective population.

The commission met, organized and early in the spring of 1891 sent three parties into the field, well equipped for the survey, and accompanied by topographers, geographers, geologists, mineralogists and other scientific men to make a thorough investigation of the regions to be traversed as well as to designate the route.

The first party, under the direction of Lieut. Macomb of the army, commenced work in Guatemala, near the southern boundary of Mexico,

to which surveys had already been made under the direction of the government of that republic, and continued eastward through the republics of Salvador and Nicaragua into Costa Rica, where in April last they were compelled to abandon work, owing to the failure of Congress to make the necessary appropriations.

The second party, under the direction of Mr. W. F. Shunk, began their survey at Quito, Ecuador, about the same time, and proceeded northward through the republic of Colombia to the city of Carthagena on the north coast of South America. Owing to the condition of the climate, which was extremely unhealthful at that season of the year, the second party did not continue its line along the Isthmus of Panama, but was transferred to Costa Rica, where at San Jose, the capital, a survey was undertaken eastward which was continued along the Isthmus into the republic of Colombia to Carthagena where the line from the south was reached.

The third party, under the direction of Mr. J. Imbre Miller, also commenced work at Quito, and proceeded southward through Ecuador, Peru and Bolivia, crossing the main tributaries of the Amazon, until they reached the terminus of the Arequipa, Puno and Cuzco railway; when they also they also were instructed to return to the United States.

Thus the entire route from the southern boundary of Mexico to the interior of Bolivia has been surveyed, and a few months would have carried the line to the northern boundary of the Argentine republic, and the northern terminus of its magnificent railway system.

It was the intention of the commission to run a line from the interior of Peru, eastward through the interior of Brazil to Rio de Janeiro and the other principal cities of that great republic; and also from Colombia eastward to the head of navigation on the Orinoco and the capital of Venezuela, but that important work had to be abandoned for the present.

There are men living, and in public life today, who witnessed the debates in Congress over the project to construct a railway from the the Mississippi river to the Pacific ocean. The stenographer who reported the discussions in the Senate is yet the official reporter of that body, and some who participated in them still occupy seats in the Senate chamber. In those discussions it was solemnly declared that the Rocky Mountains were impassible; that the absence of fuel and water upon the great American desert made railway traffic impracticable; that the broad plains which stretched between the Missouri river and the great divide would never furnish an ounce of tonnage; and that the savages would tear up the tracks as fast as they could be laid. These assertions were made less than a generation ago, by men who were deemed wise and learned, and who protested against the waste of public money in making useless surveys across a country that would never be occupied or needed by man.

Similar arguments have been advanced in opposition to the Intercontinental survey, and the professional economists in Congress have prevented the appropriation of even a small sum of money to complete the reconnaissance and publish the reports and the maps of the engineers. But the greatest advantage has already been accomplished. It has been demonstrated that the road can be built. The engineers who have made the survey found no insurmountable difficulties. The

problems of engineering and the cost of construction do not approach what has been encountered and overcome in Colorado, Arizona and other states and territories of the west, and the elaborate reports that have been furnished offer the greatest encouragement for prospective traffic.

Whoever builds this road will hold the key to the treasures stored in the heart of the southern continent, and their value has furnished food for three centuries of fable. A section of country as large as that which spreads between the Mississippi river and the Pacific ocean lies there unoccupied and almost unexplored. On its borders are rich agricultural lands, fine ranges, the greatest timber resources in the world, and the silver and gold mines of Bolivia, Peru and Ecuador. What exists within this unknown country is of course only a subject of speculation, but the farther man has gone the greater has been his wonder. The tales of the explorers who have attempted to penetrate it sound like the recital of the old romances of Golconda and El Dorado, but the swamps and the mountains, the rivers that cannot be forded, the jungles which forbid search, the absence of food, the difficulty of transporting supplies, and other obstacles which now prevent exploration will eventually be overcome, and the secret which has tantalized the world for more than three centuries will be disclosed by ambitious scientists.

The cost of this road is of course a matter of speculation, but no more money will be needed than has already been wasted upon the Panama canal. Three hundred million dollars, which I believe if the sum already expended upon that enterprise, will at the rate so \$50,000 a mile, construct 6,000 miles of road, and the distance to be covered is much less than that. Even at a cost of \$75,000 a mile, \$300,000,000 will build it.

It is not expected that private capital alone will complete this great undertaking, although the assurance that the 17 American nations will join in protecting the railway from disturbance and from confiscation, will give private capital a guarantee that no South American enterprise has hitherto enjoyed.

**BAGGAGE: CHECKING SYSTEMS AND DELIVERY; CLAIMS
FOR DAMAGES; LIMITATIONS OF LIABILITY;
RESTRICTIONS OF QUANTITY; NEEDS
OF THE SERVICE.**

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The baggage traffic of railways is an important adjunct of their business. It has not, however, appealed so strongly to carriers as other classes of traffic, because not directly a revenue-producing agent. This latter circumstance does not arise from any lack of inherent value of the service performed, but from the fact that the traffic is accessory merely. The rate charged for the passage ticket of the traveler covers, incidentally, his luggage, so that the latter does not seem to produce any revenue at all. It is thus lost sight of in the returns and forgotten. The enormous importance of the baggage traffic to travelers, however, has compelled railroads to adopt comprehensive and far-reaching methods for handling it. It is not a matter in which they may consult their own convenience. Nor have they sought to do so. Their methods generally are in harmony with the extent and profitableness of the passenger business of which it is a part.

Travelers may reasonably expect carriers to adopt a system of handling baggage which will subject their patrons to the minimum expenses and trouble. This involves among other things the attainment of the following ends:

First -- That passengers shall be inconvenienced or delayed as little as possible in receiving, checking (billing) and re-delivering their baggage.

Second -- That, so far as the nature of the route and the extent of the traffic warrant, all baggage shall be checked through from the point where a passenger purchases his ticket to his destination, and that at all junctions and transfer points it shall be attended to by the carrier without the intervention of the passenger.

Third -- That baggage shall go forth upon the same train as the passenger and both reach their destination simultaneously.

Fourth -- That the passenger shall, when he delivers his luggage to the carrier, be given a receipt or token, upon presentation of which the luggage will be delivered at destination without the personal intervention of the passenger.

Fifth -- That the baggage shall be carefully and intelligently guarded and its good condition maintained while en route, and that, in the event it goes astray, the appliances of the carrier shall be such as to insure its prompt recovery and transmission to the owner.

Sixth — That the carrier shall be responsible for any loss or damage the baggage may sustain while in his possession caused by his negligence, and that all just claims shall be promptly adjusted.

Seventh — That from the moment the baggage passes into the hands of the carrier to the time of its arrival at destination, the passenger shall be relieved from all anxiety concerning it.

The foregoing requirements are, in the main, fairly complied with by carriers generally the world over. The dissimilarity of conditions that prevail in different countries, and, in many cases, lack of knowledge of what is best, prevent facilities being uniformly excellent. Comparisons show, however, that no particular country excels in every detail. While one country may be preëminent in one particular, it will fall short in another.

CHECKING SYSTEMS AND DELIVERY.

Stated briefly, the system in vogue in the United States for checking (billing) baggage is as follows: The railway companies provide, in duplicate, small brass plates, tags or labels, called "checks," stamped with distinctive numbers. One check is fastened by a leathern strap to the baggage and the duplicate given to the passenger. The duplicate is the carrier's receipt for the property. Upon reaching his destination, the traveler surrenders his check and receives his baggage. The means the carrier employs of marking the baggage with its destination are as follows: To each station on the line of a railroad a distinctive number is given. Thus, its Chicago passenger station will, we will say, be No. 1. When baggage is received for transmission to that city, a small pasteboard tag or label, marked with the number 1, is slipped on the strap that holds the check. This method, of course, applies only to business beginning and ending on a company's own lines, called "local" business. Other methods are adopted for baggage passing over two or more roads, which is called "interline" or "through" business; these we shall notice later.

Stations are kept supplied with local checks in the following manner: To each a certain number of checks is allotted, say for example, checks numbered from 150 to 850. These are charged to the agent by the proper official (called the "general baggage agent") at headquarters, who keeps a minute of each check so supplied. As fast as the checks are taken up at other stations, they are sent to the general baggage agent and by him forwarded to the station to which they belong to be used again. This process is forever being repeated. Under this plan officials in charge have but to know the number of a check attached to a piece of baggage to be able to tell the place from which it was checked, also the date and train; they refer to their records to ascertain the station at which the check was issued, and from the returns rendered ascertain when and for what train it was used. This information is of great value in tracing lost baggage and locating damages sustained by property while in the company's possession.

In checking interline business, the details are somewhat different. To illustrate: We will suppose that the agent at Boston desires to check a package over certain lines to San Francisco. To do this he uses a metal check, such as described, on one side of which is stamped Boston to San Francisco, the initials of the lines over which the bag-

gage is to pass, and the number of the check. The reverse side of the check reads San Francisco to Boston and the same initials and number. When the agent at San Francisco receives this check he retains it until occasion for its use in sending baggage to Boston arises. These are known as "reversible" checks, and are supplied only to stations at which interline tickets are sold. To provide for those cases to which the reversible check is not applicable, a device known as the "shell" check has come into use. This gives promise of displacing the reversible check and becoming the general method of checking all interline baggage. The "shell" consists of a piece of metal with its edges so bent as to hold a card. It is attached to a strap and has impressed upon it the name of the company to which it belongs, and a distinctive number for identification. The card checks used in conjunction with it are also numbered distinctively; they show the point of departure, route and destination of the baggage, and are made in duplicate, one being inserted in the shell and the other given to the passenger. When the shell is detached from the baggage at its destination, it is sent to the official of the company that owns it, who forwards it to the station to which it is assigned in the same manner as ordinary checks described above.

The foregoing methods of checking baggage originated in North America, and are in the main confined to it. In other countries different systems are in vogue.

In England no receipt, or token, is usually given the passenger in exchange for his luggage. The railways simply paste upon the package a label, which has printed upon it the name of the station to which it is destined. Arrived at his journey's end, the traveler points out his property and it is delivered to him. The practice of billing baggage through over connecting lines is not generally prevalent there, the passenger himself attending to the transfer. To Americans this plan seems primitive and to possess no favorable feature except its simplicity. Nevertheless there is no local outcry against it, and we are assured that instances of fraud upon railway companies (which would seem to be so easy of perpetration) are very rare.

On the continent of Europe the custom is for the carrier to give the passenger a receipt for his baggage. This receipt is numbered and specifies the weight of the baggage. A way-bill numbered correspondingly to the receipt, and indicating the destination of the baggage, is pasted on the package. Another paper, corresponding to the two mentioned, is retained as a record by the agent who forwards the baggage. The presentation of the receipt is accepted as evidence of ownership and authority for delivery of the baggage. The plan is simple and ingenious.

The criticism upon the European method of handling baggage is the requirement that all baggage, no matter how light or trifling, shall be weighed. This, it is claimed, is unnecessarily cumbersome and tedious. It is difficult for us to understand why, when a piece of baggage is palpably under the weight prescribed for free allowance, it need be weighed.

The method adopted on the continent of Europe for billing baggage is superior in many respects to that in vogue in the United States, if we eliminate therefrom the vexatious practice of weighing every package

presented for carriage, which need only be done, it is apparent, when it manifestly exceeds the free allowance. The blanks used in billing in Europe can be kept securely with less trouble and expense than the metal checks we use. They are less likely to be lost or stolen. They can be made more difficult to counterfeit. They cost less originally. They involve less labor in accounting. They can not so easily be attached to, or detached from, packages by unauthorized persons. Finally they are simpler in many other ways. Our metal checks can be easily detached from their leathern thongs by the evil disposed, and other checks of which they have duplicates substituted therefor; the metal check is easily counterfeited by the crudest machinist; it is cumbersome and not comparable to a diminutive, clean and neatly engraved slip of paper which the traveler may carry in his purse.

Under the paper check system it is possible to so simplify the work that all the forwarding agent has to do is to insert in the blanks the number of the station to which the baggage is destined. On the other hand, the metal check is imperishable. But this merit is off-set by the objections named and by the fact that it is costly in the first instance, while its re-distribution and the accounting it necessitates involve considerable expense.

Under the metal check system a serious cause of loss and annoyance is the "mismatching" of checks, by which is meant the attachment of a check bearing a certain number to a package and the giving of a check bearing a different number to the passenger. This mismatching is usually brought about by mistakes in arranging and assorting the checks for distribution and use. Under the paper check system, hundreds or even thousands of them may be bound together in book form, each bill or check and its correlative forms being numbered consecutively by the printer. In this way no two sets of blanks could ever by any possible means bear the same number, so that the danger of mismatching would not exist.

CLAIMS FOR DAMAGES: LIMITATION OF LIABILITY.

Under the laws of all highly civilized countries the carrier is held to be an insurer of the baggage he transports so far as losses or damages occur through his neglect or carelessness. To this extent carriers are liable pecuniarily for the safe transmission of such property.

In addition to the dangers from accident and wreck that must always menace baggage, the carrier has to contend with conditions thrust upon him by his patrons. Thus, many packages delivered to him are unreasonably bulky or heavy, insecurely fastened, or too frail to withstand the ordinary usages of travel. In the operations of business a single porter is generally called upon to handle articles, hence if the package be unwieldy or unduly weighty it must of necessity receive rougher usage than would otherwise occur. Moreover, the traffic must from its nature be handled hastily. There is no time for deliberation; for the studying of processes. Another danger that menaces baggage, for which the carrier is responsible, is the venality and carelessness of employes and others having access to it.

These and other dangers that menace the luggage traffic necessitate the establishment by carriers of comprehensive methods for protecting such property, for discovering it when missing and for making prompt

reparation to the owner in the event of loss or damage. The practice in the United States when baggage is missing is to send a description of it to each station where it may have inadvertently been carried, with instructions to agents to make careful search for the lost article. If this search is thorough, it results in the discovery of the property, unless it has been destroyed or removed from the company's premises. Agents are also required to report periodically to the carrier all property at their stations not called for, or for which they have no bill ; also all property claimed but not on hand, and which, therefore, has presumably been lost or delivered at a wrong station ; all property that has been damaged in transit, and so on. Examination and comparison of returns of this nature facilitate the discovery of missing articles and the elucidation of the facts relating to those lost or damaged.

In the conduct of the baggage traffic, many articles remain in the possession of the carrier not claimed by their owners. But, as a rule, they have little value. They usually consist of cheap articles of clothing which owners will not put themselves to inconvenience to reclaim, such as umbrellas, canes, wraps, books, periodicals, etc., etc. The law generally requires that unclaimed property shall be held by the carrier for a certain length of time, and in some cases advertised, after which it may be sold by the company.

The limitation of the carrier's pecuniary liability for baggage lost or damaged varies in different countries, but in none is the carrier responsible for property carried as baggage which is not properly such.

In England the responsibility of the carrier is limited to \$50 by law for such articles as jewelry, silks, laces and furs. In France he is liable for such jewelry and moneys as passengers may have in their possession, required by the wants of the journey. In Italy and Austria, if the value of the baggage is not expressly stated when delivered to the carrier, the passenger can only claim compensation for its loss or damage at a specified rate per pound ; but the carrier is compelled to insure the baggage if requested, upon being paid a fee therefor. In Spain there is no limit to the carrier's liability. But if a passenger, whose baggage contains jewelry, precious stones, bank notes, moneys and securities, does not exhibit them and state their value, the carrier is not responsible for their theft or loss. In the United States the responsibility of the railroads for baggage is practically unlimited ; nor have they the power to limit their liability except by formal and specific contract with the owner of the property. If, however, the passenger deceives the carrier as to the value of his baggage, the latter's responsibility as an insurer is discharged ; but it should be noted in this connection that unless the carrier inquires as to the value of the property and the passenger fails to disclose it, this is no fraud upon the carrier and his responsibility remains. Thus a lady has been awarded \$75,000 by courts for laces and jewels, claimed by her to have been lost while in the hands of the carrier.

RESTRICTIONS OF QUANTITY.

The quantity of baggage a passenger may have carried without extra payment varies in different countries. On the continent of Europe it averages about 56 pounds. In England the first-class passenger is allowed 120 pounds ; in the United States it is generally 150 pounds.

For baggage over and above this the passenger is called upon to pay a sum in addition to his passage money. The rate varies according to circumstances not only in different countries but in different parts of the same country.

There has been in the past much difficulty experienced in the United States in the collection of charges for excess baggage, *i. e.*, baggage in excess of the amount that may be carried without extra charge. This has arisen principally from the attempt to compel payment at the starting point. The time available for weighing and billing articles and collecting therefor, has, in consequence of the haste of passengers, been found inadequate for the thorough performance of the duty. Hence more or less of the revenue that ought to have accrued to carriers for services rendered in this direction has been lost. With time and increased experience the methods of carriers have become more elastic and a remedy for the defect has been found in the adoption of a rule that permits or enforces collection at the place to which the baggage is destined. Excess baggage upon which the charges are not prepaid is marked "C. O. D." (Collect on delivery). This sign is the mandate to the receiving agent to make the collection.

As the business of the baggage department grows, methods for collecting the earnings from excess baggage must be such as to permit of all this revenue being garnered. This can not be done if the charges must be paid arbitrarily at one end of the route. The arrangements for collection must be as flexible as in the case of freight traffic. It may be desirable to have charges prepaid, but whenever property in the possession of the carrier exceeds the value of the charge he makes, he can not refuse to allow such charge to follow the goods to the point of delivery.

NEEDS OF THE BAGGAGE SERVICE.

In the handling of baggage, as in all other matters connected with transportation interests, the revenue that accrues therefrom should determine the nature and extent of the facilities afforded. It does not matter that this revenue is indirect; that it is embraced in the passenger's ticket; it is none the less real on that account. As to the justness of such an arrangement men will differ as their interests appear. As a matter of fact, however, there is no equity in charging a passenger who has no baggage the same rate as one that has. The custom is, however, firmly established and will, it is probable, never be changed, or if changed the process will be slow. In this connection it must be remembered that not only is the carrier put to expense in providing facilities and men for handling the baggage at the point of departure, en route and at destination, but he is also compelled to insure the property, so that the outlay is under the most favorable circumstances very great.

The merging of the earnings for the transportation of luggage with those for the transportation of passengers works unfortunately for the baggage department. This department, in consequence of this arrangement, does not receive the encouragement that it would if the results of its efforts were apparent from day to day as they are in other departments of the service. There can be no doubt that the force engaged in this branch would be stimulated by such an expression of

usefulness. Men of the highest ability in its service would be greatly multiplied and appliances of the most comprehensive order would be employed, to add to the usefulness and earnings capacity of the department; its wants would be studied with exhaustive particularity as they are in the case of the passenger and the freight business, with a view to stimulating its growth.

The baggage of railroads exceeds, generally, their express traffic. It is also of much greater value relatively. Yet, in its handling only a few officials are employed, while in the conduct of an equal amount of express business many supervising managers of the highest business capacity known are engaged and paid salaries commensurate therewith.

Carriers, as well as those in charge of the baggage department of railways, would be stimulated directly and indirectly by a better understanding of the earnings capacity of the baggage traffic. Upon the profitableness or otherwise of the baggage traffic, measurably depends the facilities to be accorded.

As to how the earnings of the baggage department may be ascertained, men will differ. A safe division as between passengers and baggage would accord to each a proportion based on the relation that the cost of each bears to the whole. As the two kinds of service are inseparable, it is not too much to say that their earnings capacity is relative.

**PASSENGER TICKETS; DEFECTS OF EXISTING SYSTEMS;
SPECIAL CONTRACTS AND CONDITIONS; LIMITATIONS OF TIME; THROUGH TICKETS;
COMMUTATION TICKETS; ZONE
TARIFFS, ETC.**

GEO. H. HEAFFORD, GENERAL PASSENGER AND TICKET AGENT
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There are four principal classes of passage ticket transportation sold by the railway companies of the United States of America, viz:

A. Local tickets, good for a single one way or round trip passage of "bearer" between points on the road issuing such tickets.

B. Commutation tickets, good for one person, or for a number of persons, for a specified number of rides or for a particular period, to be used principally between large cities and suburban towns or villages by residents of the latter.

C. Mileage tickets—in books of 500 miles, 1,000 miles or 2,000 miles, according to price—good for "bearer" (if required by state law), or for use by one person whose name must be specified and signed to the terms prescribed by the railway company issuing the ticket. This form of ticket is frequently made good for passage over connecting roads by arrangement between the roads interested, and settlement is

made for coupons or detachments of mileage collected by the road on which the mileage ticket is honored for passage, in accordance with the usual methods of accounting. In brief, the road collecting the coupons sends them to the issuing road at the end of each month with a bill which, when examined and found correct, is passed to the treasurer of the issuing road for payment.

D. Coupon tickets, which, as distinguished from local tickets, are honored for passage over such other closely or remotely connecting roads as arrangement may be made by the lines interested for the purpose of interchanging passenger traffic.

This form of ticket is available for booking or ticketing a passenger from any one point to any other point on the American continent, or from any one point on the American continent to certain points beyond the Atlantic or Pacific ocean, and its desirability and convenience is appreciated because of the fact that the possessor of a *through* coupon ticket can check his luggage from starting point to destination, and also avoid the necessity of purchasing local tickets at any intermediate point of his journey. In addition, passengers taking a long journey by a slightly circuitous route can frequently save money by the purchase of a through ticket, as the sums of the local rates are often in excess of a through rate, which is accounted for by the fact that in America the customary rule is to make applicable to slightly circuitous routes the through rate made by a more direct or shorter line. This is the result of competition, which is practically unhampered in the United States of America. State laws frequently control the price to be charged for tickets sold for passage originating and terminating within state boundaries. The law of the American Congress controls interstate traffic to the extent of requiring publicity of rates made for such traffic and that no discriminations shall exist between persons. In other words, when rates are published, those rates must be observed, and no preference in rates of fare can be shown any person. By a most complete system of accounting, the adjustment of accounts for coupon tickets sold and interchanged is made at the end of each month by and between the respective railway companies honoring each other's tickets, and drafts are made for balances.

All coupons sold by the issuing road are reported to the roads over which they read for passage, whether collected by the latter or not. It will be noticed that in this respect the mode of adjustment is exactly the reverse of the method of settlement for mileage coupons interchanged: this for obvious reasons.

Local tickets in this country are usually printed on cardboard and are inexpensive. The printed matter thereon covers simply the name of the issuing road, the selling and destination point, the fact that the ticket is limited to use within a specified period, a consecutive number, and the fac-simile of the signature of the general passenger and ticket agent.

Commutation tickets are usually printed from an engraved plate if used in card form, showing number of rides to be punched by conductor, and even when the form of ticket provides for a coupon to be detached for each ride, the ticket and its coupons are of a somewhat elaborate design to prevent counterfeiting and other forms of abuse and misuse.

Mileage tickets of the form most frequently used are provided with a cover (on which is printed the regulations and terms governing the sale and use of such tickets) and enclosing a strip with the transverse lines, each line representing one mile, or pages of coupons for detachment by conductors, each line or coupon showing on its face a consecutive number corresponding with the one on the cover, and a number to which reference is made by the conductor in detaching strips or coupons for the distance to be traveled by the passenger on each journey.

Coupon tickets are, as a rule, patterned after a form approved by a committee of experts, members of the American Association of General Passenger and Ticket Agents. The contract portion of the ticket and its coupons are printed on one piece of perforated paper so that each coupon can be detached by the conductor of the road over which the ticket reads good for passage. The limit of use is expressed by printed figures in the margin, which are punched by the selling agent.

Were there no dishonest people in the world there would be no ground for unfavorable criticism of the almost perfect system of American railway tickets.

Up to this date all the efforts to prepare a form of railway ticket which cannot be altered and misused have failed. "Safety paper" and "indelible ink" have proved useless. Punch marks used to indicate dates of limitation, have been filled up and new ones made with a success which almost defies detection. Written and printed "destinations" to short-haul points have been changed to long-haul points with a skill that evades the scrutiny of the most careful and experienced train conductors, and all of this is done at the expense of railway revenue.

There are in the United States of America one or more organizations styled "ticket brokers," which prey upon railroads and the traveling public. Their mission, as announced by themselves, is to stand as "middlemen" between the railroads and the passengers, to sell tickets or transportation at less than the rates fixed by state and national laws. This the railroad companies are forbidden to do. The methods adopted by these organizations to accomplish their purpose are based wholly upon the inability of the roads to protect the prescribed forms of tickets from alteration and abuse by that portion of the traveling community willing to participate in these illegitimate methods of the "middlemen," which also frequently involve forgery in connection with mileage and other contract tickets. The patrons of the brokers make or save a dollar or two on each transaction, and the brokers themselves live and thrive on the fruit of the crimes, jointly committed by themselves and their patrons, and by which the railway companies are robbed of their just revenue.

Such a lamentable condition of affairs would not be permitted to exist in any other country. Our nearest neighbor—the Dominion of Canada—will not permit it for an instant.

Several of the United States have passed laws which, if enforced, would break up and totally destroy the organization of "ticket brokers," but the technicalities of the laws have prevented them from becoming effective. Only a national law—similar to that of Canada—can reach these people. Think of it! Less than five hundred persons, who call themselves "public benefactors" absolutely prevent the maintenance of tariff rates by the railway companies of a country which has a popu.

lation of nearly seventy millions, and this in direct contempt of the laws of the land. It is a sight to make the gods weep.

Nearly all special contracts and conditions attached to tickets prescribing by whom or how such tickets shall be used for passage, and nearly all limitations of time for other than commutation tickets could be dispensed with, and more or less annoyance avoided, where the so-called "ticket brokers" enjoined from establishing markets for stolen, lost and forged tickets.

A ticket is, in substance, a form of transportation which entitles the original purchaser to travel on the trains of the railway company in accordance with the terms printed on the ticket which is, in effect, a receipt for the money he has paid to the railway company through its legitimate agent or representative.

A passage ticket is legally and in equity the property of the original purchaser only to the extent that a contract between two persons is the property of either one of them. A contract cannot, under usual conditions, be sold to a third person by one of the parties thereto, nor its obligations or privileges assigned to another, without the consent of both parties to the contract. A passage ticket, unless issued good for the transportation of bearer, is in the nature of a contract between the issuing railway and the purchaser, under which the railway agrees to carry the purchaser only from the initial to destination point. The railway company does not contract to carry such person a portion of the distance, and another person, or perhaps two or three other persons, intermediate parts of the distance covered by such passage ticket. To impose such an obligation on the railway issuing the ticket would be an injustice, in that its legal rates and revenue between intermediate points, or from any intermediate point on such ticket to the destination thereof, would be interfered with. In disposing of a ticket partially used to be used a portion of the distance by another person, the original purchaser of the ticket assumes to dictate to and control for the railway issuing the ticket the price it shall receive for the transportation of the second person between two points which are not the initial and destination points named on the ticket, for the reason that the rate from the point from which the original purchaser started to the intermediate point of the ticket, which was his actual destination, and the rate from such intermediate point to the destination of the ticket or the point to which it was used by the second passenger, may be, and usually are together greater in amount than the through rate at which the ticket was sold. Equity and justice are supposed to be embodied in any law regulating mutual relations, transactions or contracts between any two persons, and it cannot, therefore, be consistently advocated that a contract for transportation can be so manipulated as to work an injustice and injury to one of the parties to such contract.

The railway company will redeem (at the original price paid) any ticket which the purchaser is not able to use, or the railway company will give him in cash the proportionate value of a partly used ticket. But the "ticket broker" offers a premium for rascality, and, in many instances the devil gets his dues.

As to railway tariffs much can be said, but my time and space are limited, and so many conditions enter into the question that no plan is practicable which can cover the vast extent of country included in the

United States of America. So long as state legislatures control the portions of a railway system within their boundaries, and no two states traversed by the same railway system are agreed as to what is fair compensation, it would seem wise that no attempt be made to legislate upon the question. The law of supply and demand, with free and unrestricted competition, is enough to insure reasonable rates and corresponding improvements in operating and traffic facilities. The Hungarian Zone theory cannot be made practical in the United States. No "free and enlightened" people would submit to the inferior accommodations furnished by the railways under Hungarian government control, nor will such a people be satisfied with any system which is not based upon a certain rate *per mile* traveled, regardless of the comparatively short distances encompassed within any zone circle.

Having dealt technically with the topic assigned to me, I feel that I may, perhaps, trespass on your time to add a few paragraphs of a general character. Ours is a new country, but our railway people are progressive. The exhibits of the Baltimore & Ohio, Pennsylvania, New York Central, Chicago, Milwaukee & St. Paul, and Canadian Pacific Railways at the World's Columbian Exposition prove my assertion.

I believe no country in the Old World can furnish such luxurious and comfortable passenger trains—including sleeping car, parlor car, and dining car equipment—as travelers in North America are provided with.

The electric light in sleeping car berths by which persons troubled with insomnia can read all night long without annoyance to fellow-passengers is, I believe, only used in this country, and is appreciated more thoroughly than any other recent invention. Gas has superseded oil and candles in parlor cars and ordinary coaches, and steam heat has conquered the old car stove.

Dining cars furnish the choicest menus, and no first-class traveler begrudges the single dollar paid for food which if served a la carte at world's fair prices would deplete his purse to the extent of three times the cost of his table d'hôte meal taken en route. As a rule there are no profits in furnishing dining car service, but the advertisement for the lines which conduct them properly serves to bring revenue from the passenger traffic desirous of creature comforts, and the time saved in not stopping for meals at stations is worth considering in preparing schedules for long distance trains run at a high rate of speed to accommodate the exacting American traveler who demands from railway companies three points of perfection, viz.: Rapid transit, absolute comfort, and immunity from accident.

The American system of handling and checking baggage can not be improved upon.

A passenger can check his trunks from his room at the Fifth Avenue Hotel in New York city and have them placed in his apartments at the Palace Hotel in San Francisco without having to watch their transfer at any point en route. He has only to purchase the passage ticket; the little brass check with its leather strap does the rest.

In a thousand details of railway enterprise we so-called yankees lead the procession. In some few things we are yet behind our old world friends, but give us a few years more to create a population with

which to fill up our now sparsely settled broad stretches of land, which in turn will create a better revenue for our train service, and we will then endeavor to show our friends from across the Atlantic ocean that we have either adopted some of their methods, which are now better than ours, or we will have improved upon them to such an extent that they may be willing to accept our ideas.

If he who makes two blades of grass grow where but one grew before is a public benefactor, is he not doubly entitled to the plaudits of the world who abridges distance, lessens risk of life, and cheapens transportation?

To accomplish these results is the proud mission of each of us who in any way is connected with the master profession which makes the "wheels go round."

**POLICE POWERS OF RAILWAY TRAIN OFFICIALS ; THE BEST
MEANS OF GUARDING AGAINST FRAUDS ON THE
CARRIER AND AGAINST INJURY TO PAS-
SENGERS BY ACCIDENT OR MISTAKE.**

R. C. RICHARDS, GENERAL CLAIM AGENT CHICAGO AND NORTH
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The subject which has been assigned me can be best discussed under three separate heads.

First. The police powers of railway train officials.

The legislatures in all but twelve of the states of this Union have by special enactment invested the conductors of all trains upon which passengers are carried with police authority, for the purpose of keeping good order on the trains, the prevention of annoyance and insult to passengers by persons who are intoxicated or otherwise unfit to ride on the trains, and especially for the purpose of preventing the fleecing of passengers by the three card monte game and other gambling devices. Generally the authority is given the conductors, in the acts referred to, to eject at any place where the offense is committed persons who are guilty of any disorderly conduct, of the use of obscene language or of attempting gambling, provision being made, however, in some of the statutes that the conductor must tender back to the person ejected the unearned fare paid by him. In this particular the law in relation to the ejection of persons from trains was changed, as previous to the enactment of these statutes the ejection could only be made at a regular stopping place or, in some of the states, opposite or near a dwelling house. By the same statute in many of the states authority was generally conferred on the conductors or employes of passenger trains to arrest any one who committed a misdemeanor or crime on such trains, with the proviso that the person so arrested should be promptly taken before some magistrate in the county where the offense

was committed and complaint lodged against him in the usual manner required by law. *

The enactment of these laws was, I believe, caused by the difficulty with which the carriers were meeting, along in the seventies, in preventing the operations of gamblers on their trains, the trouble being of such a growing nature that it was necessary to adopt stringent measures to crush it out. Consequently these laws were passed by the different legislatures, the intention being, I think, not so much to protect the carrier as to provide means for protecting the passenger, as no such authority was conferred on conductors of freight trains, unless they carried passengers. In this it would appear that the laws are defective, as it will be generally admitted that more crimes and misdemeanors are committed on freight trains in the way of theft and burglary by thieves and tramps, many times over, than on passenger trains. Therefore it would seem proper that the laws in this regard should be amended so as to give the same power to conductors of freight trains to arrest persons who commit crimes on their trains as is given the conductors of trains of the higher class. And by reason of the powers given and duties required of train men by these statutes the operating officials of the railways should give very full and careful instructions to their subordinates so that the men shall have a clear understanding of what their duties in the premises are and just how far their authority extends so that they will not, through misunderstanding, exceed the authority given them in the statutes and thereby give cause for one of the most dangerous of law suits against railway companies, that of damages for false arrest. These instructions, together with a synopsis of the law, should be embodied in the printed rules which are furnished for the government of the employes by the operating department of railway companies which I believe is not generally done at present.

Now that railway companies are held to such a high degree of care in the protection of passengers, it having been decided by the supreme court of the state of Illinois that a passenger can recover for an injury received by a bullet fired by one of a mob into the train upon which the passenger was riding, with the intent to injure some workmen who were riding on the train to take the place of strikers, the person injured however not being one of the men going to work (see the case of Pillsbury against Chicago & Alton Railway, reported in the 123 Illinois reports, page 9), the law should be amended so that no action for damages for false arrest could be maintained where the person arrested was acquitted of the offense charged, unless the arrest had been made maliciously. For if the servants of the carrier are by law required to perform the duty of peace officers for the protection of the passenger they should have the same protection in enforcing the law that a sheriff, constable or police officer has, and the carrier should not be required to take the risk of paying damages on account of a mistake honestly made by its employe in the performance of such duty.

Second. As to the best means of guarding against frauds on the carrier.

In my opinion the first thing necessary for accomplishing this most desirable result is the education of the people to the belief that it is as much a crime and disgrace to defraud a railway company as it is to defraud one's neighbor, instead of the seeming prevalent belief that a

railway company is common prey, and anything obtained from it, no matter how illegitimate the means used, is something to be proud of. This can be done quicker and better by the establishment of a reputation by the carrier of treating all its patrons fairly and showing no favors to one that it is not willing to grant to all, under the same circumstances, by doing all that is possible to aid in the detection and punishment of any one guilty of practicing or attempting to practice fraud against it, no matter who the person may be or how much revenue is derived from his business, and by showing to the patrons and the public that a fraud committed against it by any one of them is as certain of being punished as a fraud committed against an individual, and that it results in a pecuniary injury to them all as well as in the necessity of the making and enforcing rules by the carrier to prevent such occurrences in the future that are sometimes an inconvenience and annoyance to the customers; by the prompt consideration of all reasonable complaints made against employes and agents, and their manner of doing business, by the immediate righting of any wrongs or mistakes when they are found to exist, and also by the prompt payment of all just claims. When this is done the carrier will have the assistance and support of all who desire to do business on legitimate terms, in preventing those who do not wish to do so from accomplishing their fraudulent devices.

Second. The next thing necessary is the carrying on of the good work commenced by the traffic associations in the way of reducing the number of classes under which property transported is rated, and the establishment of stable and reasonable rates for the transportation of persons and property that are open to all alike. The upholding of the inspection and weighing bureaus in their good work in preventing frauds and thereby protecting and adding to the revenues of the companies is also of the first necessity. Of course so long as human nature is weak there will always be some whose fertile brains will conceive and carry out schemes to defraud the carrier, looking only to the temporary gain thereby secured and forgetting that the old rule, "honesty is the best policy," is just as sound now as it was many years ago.

The third essential is that all passengers shall be required to provide themselves with tickets before taking passage on trains, making the matter of procuring tickets easy and convenient to the passenger, as well as to his pecuniary interest, so that he will feel bound to comply with such reasonable requirements. The revenue gained by the enforcement of such a regulation would in the end, I think, much more than offset the necessary increase in operating expenses caused by its adoption, as well as result in almost entirely removing the temptation to the employe in charge of the train to enter into collusion with the passenger by which the carrier is defrauded of his reasonable compensation. If it is practicable to issue tickets for five thousand miles or more, good on all lines in a certain strip of territory, or say, good on all main lines in one state, or between certain terminals, as, for example, between Chicago and the Missouri river, making such tickets good for any representative of the house purchasing them, it would, I think, result that all merchants or corporations who have traveling representatives using any considerable amount of mileage, would supply them with such tickets and insist upon their use by their agents. If this could be done, I think it would be advantageous, not only to the carrier but also

to the merchant and traveling salesman. In the matter of printing and selling tickets, if some arrangement could be made by which tickets could be gotten up in a more simple form, and also collected and returned more promptly, there would be fewer of them put in the scalper's hands for sale, and used the second time.

And now as to the last and, as it seems to me, the most important division of the subject.

Third. The prevention of injury to passengers by accident or mistake.

It will be generally conceded, I think, that no accident occurs, ordinarily, which is not caused by a mistake, and therefore, the matter of injury to passengers by accident or mistake will be treated together.

According to the last report of the interstate commerce commission it appears that the railways carried during that period the immense number of 492,430,865 passengers, of whom 2,425 were injured and 286 killed, the total of both killed and injured being 2,711 or one in each 181,642 carried and only one killed in each 1,727,789 carried. The ratio is so small that the transportation department of the railway service may well congratulate themselves on the record thus made and ask whether anything better could be expected; for if a person traveling on a railway train is almost if not quite as safe as in his own bed, perfection has seemingly been almost reached. Yet we who are in the business of adjusting claims for damages resulting from such injuries to passengers caused by accident or mistake, or in other words paying for the mistakes of the transportation department, are able to see a few places where the service can be improved; and if the recommendations which are almost being daily made to the operating department in relation to the means to be adopted to prevent accidents were received in a different spirit and more attention paid to them, fewer lives would be lost and a smaller number of injuries would be added to the already too long list, and consequently there would be fewer mistakes to be paid for.

The first thing necessary to prevent injury to passengers is to have good track, bridges and cars and engines; and second, and just as necessary, if not more so (as unfortunately in newly and sparsely settled territory it is not always possible to have immediately an opening of the line good track and equipment) competent and careful employes and officers operating the trains, with plain and reasonable rules governing the same and rigid enforcement of the rules, which should be made clear by careful explanation to every employe who is intrusted with the care of the lives and property of the passenger, as well as of the property and reputation of the company.

Nearly all railroads now print and furnish to all employes copies of the rules which apply to the department of the service in which they are engaged. Every conductor and engineer before being put in charge of a train or engine is examined by the division superintendent, or some one representing him, on these rules, and if a person cannot pass a satisfactory examination he is not promoted. But sometimes, owing to the press of other work, the examination is not as thorough as it should be, and incompetent persons are placed in charge of trains or engines, or men are promoted before they fully understand the rules and the necessity of strict compliance with them. Again some of the rules are subject to two different constructions, as are many of our laws (for in-

stance the one requiring the Sunday closing of the fair), and it becomes important that all rules about which there is any doubt of the meaning should be immediately referred to the superintendent for his construction, so that no accident may result by reason of the employé misunderstanding it; and when it is found that the rule is wrong it should be promptly changed. If some of the following suggestions and rules were adopted, I believe there would be fewer injuries to passengers by accident or mistake.

1. That no person be employed for the purpose of issuing or receiving train orders or be placed in charge of signal or switch towers or elsewhere, having authority to control the movements of trains, who has not reached the age of twenty-one years. As we all know it is very difficult to make a person under that age understand the necessity of strict compliance with the rules in such matters; moreover in cases of emergency they are more apt to lose their presence of mind than an older person, and make a mistake which may result in loss of life or injury to passengers, as well as loss of property.

2. The adoption of a rule that no train order shall be sent making a meeting point for trains, unless the order is given to all trains affected thereby at least one station in advance of the one where the trains are directed to meet. It is better to do this and perhaps lay out one train, than it is to run the risk of the order not reaching all trains affected by it before they reach the meeting point and attempt to pass on the same track, with the usual result. Many head-end collisions are caused by the giving of such orders, and such accidents nearly always result in the loss of life or serious injury to persons, as well as great property loss, and more delay to traffic is occasioned by one head-end collision than is saved in months by giving the order as it is now done.

3. That a rule be adopted that no train be allowed to follow a passenger train, where the road is curved or the grade heavy, until the passenger train has had fully ten minutes' start, unless the block system of signals is in operation on that part of the line.

4. Refusal to carry passengers on freight trains where it is possible to do so, the danger to accident on which, as we all know, has very greatly increased since the use of air brakes on trains of that class, caused by the sudden taking up of the slack of the train by the application of the air, frequently throwing passengers out of their seats and generally injuring their spine or back. In some parts of the country it is almost impossible to refuse to carry passengers on freight trains, there being but one passenger train each way per day, and frequently, owing to the necessity of making through connections, these trains being run at inconvenient hours to accommodate the local business; hence the necessity of carrying passengers on freight trains. But where this is done the employés in charge of such trains should be especially instructed as to the use of the air brake, and the liability of injury to passengers by its improper and careless handling should be fully explained to them, so that accidents may be avoided. Special pains and care should be taken in stopping the car in which the passengers are riding at some safe or convenient place for them to alight.

5. The building of sufficiently long platforms at stations to accommodate trains which are constantly growing in length, and keeping in good repair all the platforms and approaches to station grounds, as

well as the intelligent and proper lighting of the stations and platforms, to which at present not enough attention is paid, will aid materially in reducing the number of accidents to passengers. At present it seems that the management of the roads do not realize how necessary this is, or how much it would add to the reputation of the lines if it were properly done, as well as diminishing the number of accidents at stations.

That more care be taken in the inspection of motive power and rolling stock, so that accidents caused by the breaking of wheels, axles and similar appliances will be avoided. There would seem to be no reason, in ordinary weather, why a train should not run from one terminal, where such inspections are made, to another without an accident being caused by reason of the wheels, axles or other appliances breaking. There should be a careful, systematic and thorough examination of the track, bridges and culverts by some competent person other than the official who is held directly responsible for keeping them in repair. Fences should be built between the main tracks at stations on the double track and viaducts over the track at such places, so that passengers can cross over and thereby avoid the risk of injury while getting on the train by another one running through the station at the same time on the other track. Where this is not done a rule should be adopted prohibiting one train from pulling into a station at which another train is standing for the purpose of receiving or discharging passengers, until such train has started up and its rear coach has passed the end of the station platform nearest the approaching train.

The adoption of a rule requiring that when train orders are sent to the conductors and engineers, enough copies shall be made by the operator so that each employé on the train shall be furnished with one. If this were done, in some cases where the engineer and conductor forgets or overlooks his order, the other employés on the train would be apt to notice the mistake and call attention to it in time to avoid accident.

That train dispatchers in giving orders to train men make them as full as possible so that the men will understand just what result it is intended to accomplish, as where a man is made to feel that he is a partner in an enterprise he will put forth greater effort to make it successful.

That where the traffic is heavy enough to warrant the expense, that the automatic block system be adopted governing the movements of trains.

That at all railroad crossings where it is practicable the roads be required to cross over or under the track first laid, and where not practicable that interlocking plants be located and used, and where neither of these plans is feasible, the law requiring trains to stop for the crossings be strictly enforced, and that gates be erected at the crossings and a competent person placed in charge of the same. It would seem that the different states should pass laws prohibiting any more crossings being made at grade, and that any railroad, in this age, that cannot afford to make such a crossing in such a manner as will protect the employé and passenger from injury, should not be given a charter.

That no train be allowed to receive or discharge passengers while standing on a railroad crossing, and that a penalty be provided by law to enforce such a regulation.

That all stations where trains stop to unload passengers be properly

announced so that ample time would be given them to get ready to get off before the train reaches their station, and then that the train stop a reasonable length of time to allow them to do so, and that especial care be taken with the old and infirm and those unaccustomed to traveling so as to get them off the cars safely.

That a careful investigation be made of the facts in each case where a passenger is killed or injured, no matter how the accident occurs, and the employé or official who is to blame be held to strict accountability therefor; and when the investigation develops the fact that the business is being done in an improper manner, that a remedy be found and promptly applied.

And last, and as it seems to me the most important of all, that more care be taken in the employment of men in the engine, train and switching service. Now that the scale of wages paid in these branches of the service is so high, and the opportunities for promotion are so great, the companies are practically given the opportunity of selecting their employés from the pick of the young men in the country; that every man before being engaged in this branch of the service should be required to stand a physical examination, especially as to his sight and hearing, and also be required to have a good common school education, and that before any one is employed the rules and requirements of the service be fully explained to him, so that he will understand that the prevention of loss of life and property as well as his future advancement depend upon strict obedience to the rules; that the custom now in vogue on most railroads of promotion from the ranks and for meritorious service be continued, so that all employés engaged in the transportation department will come to understand that their pecuniary interest and their advancement, as well as the permanency of their position, depend solely on the prompt and intelligent attention and care given to the lives and property placed in their charge, and the protection and enhancement of the revenues of their employer.

This, together with the cultivation of friendly relations between employés and officials of the companies, absolute fairness in the treatment of employés so that no one shall be discharged except for cause, the good of the service and the protection of the public; and the prompt reinstatement of all men who are unjustly discharged from the service will, in my opinion, do more than anything else to "prevent injuries to passengers by accidents or mistakes, as well as prevent frauds against the carrier."

SAFETY DEVICES APPLIED TO RAILWAY CARS.

GEN. HORACE PORTER, VICE-PRESIDENT PULLMAN'S PALACE CAR CO.

Ever since the introduction of railways in this country speed, comfort and safety in travel have been the three salient merits advertised by passenger agents. Since the first trains were put on speed has quadrupled, comfort has become luxury, and safety, while it has not yet been able to avoid all sources of danger, has fully kept pace with the progress of other improvements.

To appreciate properly what has been accomplished in the direction of safety in the present age we must consider the dangers to which railway travel was exposed half a century ago. It has been said by advocates of mechanical evolution that the modern steam engine has been evolved from the ancient leather fire bucket. It might be said with truth that the modern railway car has been evolved from the old fashioned stage coach. The early cars were divided into compartments that bore a close resemblance inside and outside to stage coach bodies with the middle seat omitted. America is one of the few countries which has departed entirely in the construction of its cars from the stage coach architecture, and has adopted a long car in one compartment containing a middle aisle which admits of communication throughout the train.

When we picture the surroundings of the traveler upon railways during the early years of their existence, we find that his trip was surrounded with so many dangers that it is not a matter of wonder that it took the traveling public a long time to become educated to making journeys which involved so many perils and discomforts. The car was frail in construction, and at first was mounted upon wheels without trucks, which constituted a source of danger when passing around curves, and in case of broken wheels and axles; and when trucks were introduced they were so crude in construction that for some time but meagre advantage was derived from them. The strength of materials was so badly proportioned that weak spots developed, and "break downs" were proverbially common. The brakes were clumsy and of little service; the couplings were dangerous; there were no buffers; "telescoping" in collisions was of frequent occurrence; the ends of the flat bar rails were cut diagonally, so that when laid down they would lap and form a smoother joint, and they often became "sprung," spikes would not hold, and the end of the rail with its sharp point would rise high enough for the wheel to run under it, rip it loose and send the pointed end through the car. This was called a "snake's head," and the unlucky passenger sitting over it was likely to be impaled against the roof. A stove was placed in each end of the car, which did little more than threaten passengers with conflagration, and generate noxious

gases to poison the air. The dust was suffocating in dry weather ; there were no adequate spark arresters on the engine, or screens at the windows of the cars ; and the begrimed passenger at the end of his journey looked as if he had spent the day in a blacksmith's shop. The candles or lamps used only served to make the darkness visible, and reading in such a light produced serious injury to the eyes. The severe jolting, the rattling of the windows, and the jerking of the train produced serious shocks to the nerves, and the threatened accidents had a depressing effect upon the mind. From that day until the present time, the restless ingenuity and unceasing energy of inventors has been constantly taxed in perfecting devices for increasing the element of safety, and every year has shown more or less progress in overcoming the dangers of travel.

In 1849 the Hodge hand brake was introduced, and in 1851 the Stevens brake. These enabled the cars to be controlled in a manner which added much to the safety as well as to the economy of handling trains. These earlier forms of car brakes simply provided for a hand brake at each end of the car which was applied by direct pressure to the wheels of the truck nearest to it. In 1852 the Tanner brake was invented, which was a marked improvement upon the brakes previously used. It consisted of a series of rods and levers pivoted under the car and operated by a brake wheel from the platform, by which operation all of the brakes could be set upon the wheels of both trucks simply by the turning of one brake wheel at either end of the car.

In 1869 George Westinghouse patented his air brake, by which power from the engine was transmitted by compressed air carried through hose and acted upon the brakes of every car in the train. This marked an important era in the history of safety devices. The air brake system permitted the braking of the entire train by the engineer, and also by the pulling of a cord running through the train ; and acted automatically in case of the breaking apart of the train or the derailment of a car. The action was prompt and the power so effectual that the train could be stopped in an incredibly short time, and the brakes released in an instant.

In 1871 the vacuum brake was devised, by means of which the power was applied to the brakes by exhausting the air, instead of by applying direct air pressure.

Another important improvement in American railway cars was the mounting of the cars upon trucks of either four or six wheels. A marked advantage was derived from this construction, as car bodies of great length could be mounted upon these trucks which had an independent movement, being swiveled upon the bolster of the car, thus enabling the car to pass easily around curves of short radii. They also imparted to car construction a conspicuous element of safety against accidents arising from derailed or broken wheels ; as in case of the breaking of a wheel, the truck was able to travel upon the remaining wheels, and many serious accidents were thus avoided. The cast iron wheels for a long time used were apt to break, and became a recognized source of danger when used under passenger cars. This led to the introduction of wheels of better construction and equipped with steel tires. By this means the life of the wheel was largely increased and its strength and safety greatly augmented.

Much difficulty was experienced for many years from the imperfect methods employed in coupling cars. The ordinary means consisted of coupling pins inserted into links attached to the ends of the cars. There was a great deal of "slack," the jerking of the train was in consequence very objectionable, and the distance between the platforms of the cars made the crossing from one car to another exceedingly dangerous. In case of collisions, one platform was likely to rise above that of the next car, and "telescoping," the most dreaded form of accidents, was of frequent occurrence. The means of warning passengers against standing on the platforms were characteristic of the danger which threatened, and were often ingenious in the devices for attracting attention. On a New Jersey road there was printed on the car doors a picture of a newly-made grave with a formidable looking tombstone, on which was an inscription announcing to a terrified public that it was "Sacred to the memory of a man who had stood on a platform." These difficulties were overcome by means of ingenious devices for more securely and conveniently coupling the cars. The Miller coupler and buffer was patented in 1863, and obviated many of the discomforts and dangers arising from the old methods of coupling. This was followed by the Janney coupler and other devices, the essential principle of all being an automatic arrangement by which the two knuckles of the coupler are thrust together and become securely locked by bringing the cars into contact by the backing down of the engine in the making up of the train. There is also a system of springs which keep the buffers in close contact and prevent jerking and jarring when the train is in motion. These couplings can be released at will by a lever from the platform, so arranged as to permit of an uncoupling action when subjected to a torsional strain or movement such as occurs when a car turns over or leaves the track. This action makes provision for the automatic uncoupling of a car when thrown from the track and prevents it from dragging with it other cars in the train.

The introduction of the bell cord running through the train enabling the conductor or a passenger to communicate promptly by means of it with the engineer, and signal him in case of danger, constitutes another source of safety. It was supposed when this device was suggested that the passengers would tamper with it, and that there would be false signals given which would lead to such confusion that the evils would be greater than the advantages to be derived from it; but the people soon became educated to its use, and fully appreciated its value, and it has been generally respected and seldom interfered with by the traveling public.

To avoid the danger from oil lamps many experiments were made for the purpose of devising a compressible gas which could be carried in tanks and readily supplied to burners in the car, and gas lighting has now been very successfully applied. In addition to its safety, its convenience and cleanliness make it a very desirable means of supplying light. With the invention of electrical devices, electric lights have been introduced, and notwithstanding the mechanical difficulties at first encountered, they are now used with much success.

The satisfactory heating of cars was not successfully accomplished until a method was devised of circulating hot water through pipes. This water was raised to a proper temperature by a heater built in the

end of the car, and was then passed through pipes placed near the floor. By this means suffering from that bane of the traveler, cold feet, was obviated, much discomfort was avoided and many a doctor's bill saved.

So many accidents occurred from the destruction of cars by fire, and so many appalling instances arose of the loss of human life resulting from the overturning of stoves in cases of the derailment of the train, and the burning to death of passengers imprisoned in the wrecks of the cars, that the public became panic stricken, and popular sentiment was so aroused that appeals were made to the state legislatures to prohibit by law the former methods of heating. This has led to the heating of cars by steam taken from the engine, and indirectly therefrom by hot water circulation. Several ingenious devices are now in use to successfully accomplish this purpose in solid trains with the locomotive attached, but the problem of heating a detached car without some form of heater connected with it, is still unsolved, although these heaters are now so thoroughly encased in metal and otherwise protected that danger of fire from this cause is virtually eliminated.

The acceleration in speed and the greater severity of the shocks received in rounding curves at a high velocity was found to increase the strain upon the rolling stock, and compelled more attention to be given to new methods of framing the cars and adding to their structural strength. The improved means of framing and strengthening cars, however, did not make decided progress until sleeping cars were introduced, and special expert talent was employed with a view to largely improving the safety appliances of passenger equipment, as well as the comfort of passengers. The first type of car known as the "Pullman car" was completed in 1864, and the introduction in this car of what is known as the "Pullman upper berth," while not originally intended primarily as an element of safety in car construction, proved to be a very valuable device in that particular. This upper berth was hinged to the side of the car, and folded up to the roof, forming a triangular space in which the mattresses and bedding were stored during the day time. The upper triangular formation in the top of the car served the double purpose of making each sleeping car section a unit in itself, and also strengthened and buttressed the entire car body along each of its sides where it was weakest, and protected it effectually against being crushed in case of the car becoming derailed and rolling down an embankment. Experience proved this car to be very many times stronger than ordinary passenger coaches, in offering resistance to accidents arising from the causes mentioned.

As the sleeping car had to carry greater weight than other cars by reason of its containing berths, bulkheads, wash-stands, improved heating arrangements, etc., the framing of the car had to be made stronger than that of ordinary passenger coaches. It was found by experience that in collisions these cars were much less likely to be crushed; and as the crushing of cars had been a fruitful source of loss of life in case of accident, particular attention was directed to strengthening the bodies of all cars.

The "Pullman end safety device" is one of the latest inventions that have been introduced into the framing of passenger coaches for the purpose of conferring additional strength. It is attached to and forms a part of the end frame of a car. The end sill is re-enforced by a broad

horizontal plate of steel, to which is rivetted a heavy steel angle extending across the whole width of the car. A similar angle is attached to the corners of the floor frame by steel knees, and extending upwards in the line of the corner posts, is bent over and across the top beam forming a continuous steel frame around the whole end of the car, so that in case of collisions the colliding engine or car is prevented from crushing into the end and splitting the car open. In fact, the bending of the steel frame produced by a collision tends to draw the floor, sides and roof together rather than to force them apart.

One of the most serious dangers to which passengers and employes were exposed was in passing from one car to another while the train was in motion. The introduction of the improved couplers and buffers brought the platforms closer together, and did something towards obviating the difficulty; but in rounding sharp curves at high rates of speed, there were many cases in which persons were thrown from the train. There were instances even in which passengers were blown from the platforms during violent wind storms. The person crossing the platform generally used one hand to hold his hat on and the other hand to open the car door, so that he rarely grasped the railings to steady himself and was always in danger of being thrown from the train. As early as 1852, devices were invented which provided for diaphragms of canvas to connect adjoining cars and form a partly protected passageway between them. These were first applied to cars on the Naugatuck railroad in Connecticut in 1851, but they were used mainly for purposes of ventilation, to provide for taking in air at the head of the train so as to permit the car windows to be kept shut and thus avoid the dust that entered through them when they were open. These appliances were very crude and of little practical advantage even for the limited uses for which they were intended, and they were abandoned after a trial of about four years.

At a later date when dining, smoking and library cars were added to the limited express trains, there became an absolute necessity for the construction of some safe passageway between the cars, as all passengers were then obliged to pass from one part of the train to another. In the year 1886, George M. Pullman set to work to devise a practical system for constructing a continuous train, and at the same time to provide for sufficient flexibility in the connecting passageways to allow for the motion consequent upon the rounding of curves. His efforts resulted in what is now known as the "vestibuled train," and it is generally recognized as the most important improvement which has been made in car construction since the introduction of the sleeping car. The invention was patented in 1887, and succeeded not only in supplying the means of constructing a perfectly enclosed vestibule of handsome architectural appearance between the cars, but it accomplished what is even still more important, the introduction of a safety appliance more valuable than any yet devised for the protection of human life in case of collision. It consists of frictional buffers or frame plates practically the height of the car and projecting normally beyond the ends of the car, and which are supported by the buffer springs below, reinforced by powerful springs at the top of the car. These frames are connected with the car at the sides by elastic diaphragms. When two cars are brought together and coupled, the faces or bearing surfaces of the steel

frames are pressed by the springs against each other, and the friction thereby created is sufficient to hold them firmly in position and to prevent the oscillation of the cars. There is thus furnished a substantial buffer extending from the platform to the roof, which precludes the possibility of one platform "riding" the other and producing telescoping in case of collision. Authentic records show that in about a dozen instances in which such trains have been in collision at rates of speed even as high as fifty miles an hour, the buffer plates and springs have taken up and distributed the shock through their spring resiliency, and prevented the crushing or destruction of any portion of the car bodies. In no instance has any passenger been seriously injured, and the cars have escaped with only trifling damage. In one of the worst of these collisions, a passenger was standing in the vestibule and suffered no injury whatever. These escapes without loss of life or limb to passengers and with trifling expense to the railway companies have attracted marked attention. The friction upon the frame plates is sufficient to prevent the oscillation or swaying of the cars from side to side, and adds largely to the general steadiness of the train when in motion. This has had a decided effect in preventing nausea, from which so many passengers suffer in trains running at high speed over reversed curves. While the primary object of the vestibule was to create a safe and convenient passageway between the cars, the perfecting of the device has resulted in a safety appliance of inestimable value.

While there have been a number of minor devices introduced from time to time besides those above referred to which have contributed to the safety of cars, the scope of the present paper has admitted only of the mention of the most important ones—those which have brought about radical improvements.

While it would seem that the safety devices applied to railway cars have removed nearly every source of danger against which human ingenuity can guard, yet in this inventive and progressive age it is not improbable that in the not far distant future we may witness improvements over the present methods which will astonish us as much as the present methods surprise us when we compare them with those of the past.

RAILWAY SAFETY APPLIANCES IN THE UNITED STATES.

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About half a century has passed since the Baltimore & Ohio railroad company was exercising itself as to the best motor for its train service between Calvert street station and Ellicott's mills, and was undecided whether horses, a sail-boat on wheels or steam was preferable. Special reference is made to the Baltimore & Ohio railroad company because it was the first railroad carrying passengers in the world, and in the infancy of railroading in this country the annual reports of its company were the text books and its shops had much interest for railroad men. It was among the first to recognize the merit

of appliances tending to the safety and comfort of passenger travel and the safety of traffic transportation.

The Loughridge chain brake, worked by the engineer from the locomotive, was there first introduced, and this was, it is believed, the first effort in the interest of safety, giving the engineer power over a train in the event of an emergency, without being entirely dependent on the uncertain manipulations of the old-fashioned hand brake. This however had not the conditions for safety necessary to our progress, and for many years this device was endorsed by the management of railroads to their own great loss and detriment where other appliances were unquestionably the superior and later on adopted. Such also was the history of the Creamer and other brakes; they failed in comparative practical service, and then the air brake came. Today the hand brake alone as a working device on passenger cars would be regarded as ancient history. The brake wheel and staff are still retained on the platform and connected to the brake rods for use in shifting cars in yards, and as a possible alternative in rare occasions; but there is not a passenger car running on any important railroad in the United States which is not provided with the air brake. It will not be many years before the same thing will be true of freight cars.

None of our railroad companies would feel justified in making schedules such as they now work unless they had mechanical appliances, like air brakes, to rely upon as ever present factors of safety, and unless they knew that the tracks on which their trains ran, at a speed varying from forty to sixty miles an hour, were so thoroughly guarded by the block system and by faithful employés at their bridge approaches and junction crossings as to almost prevent the possibility of accident. A prominent member of the New York state legislature argued, when the question of building a railroad through the Mohawk valley was first under discussion, that the speed of canal boats was swift enough and that the granting of such railroad charters would result in Americans running trains at a speed of eight to ten miles an hour which would dash the traveling public into eternity. What would that statesman say now if he could be in the flesh and realize that on some of our railroads passenger trains are making a mile a minute, even through that valley where it was believed that a speed of eight or ten miles an hour would send the passenger to destruction?

Only a few years since the writer participated, as railroad manager, in general time table conventions when the officers of the Pennsylvania railroad urged the changing of time to reduce it from thirty-six to thirty-two hours between New York and Chicago, and prominent railroad managers in competition argued that it never could be done; but the change came, and then another and another, until today the twenty-four hour limit between the points above named has been reduced to twenty and this last great reduction in time comes at the request of the New York Central & Hudson river railroad, the railroad that a few years since protested so strongly against shortening the time from thirty-six hours.

The fast time on American railroads which now exists and the faster which is destined to exist in the very near future would not have been possible except for the American idea of the air brake and other appliances, and unless there had been such perfect systems for securing

safety on tracks and crossings as are furnished by the various signal companies, notably the Union Switch & Signal Co., the Johnson Railroad Signal Co., the National Switch & Signal Co., the Hall Signal Co., and others. The science and art of signaling came to us from England, but they have had a great development in this country at the hands of the people named above, and today there are in America signal engineers as competent and as well versed in the art as are to be found anywhere in the world. Although the use of block signals on the railroads of the United States appears small compared with the immense mileage of our railroads, yet it is actually large, several of the great lines having continuous stretches of hundreds of miles, and one having over 600 consecutive miles protected by block signals, and the block system is in use on nearly all American railroads where very fast trains are run and where the traffic is dense.

Not merely the United States but the whole world can afford to honor men like George Westinghouse, who has made his continuous automatic air brake a mechanical and commercial success, and thereby enhanced the safety and comfort of the traveling public. It is not confined to passenger service, but is equally applicable to freight train service, and the engineer whose engine is equipped with driver brakes as well as with the pump for working the car brakes can regulate the speed of his train at pleasure, and can prevent fatalities among the brakemen who are otherwise compelled to jeopardize their lives in passing from car to car. George Westinghouse, however, could not have met such success in the introduction of his air brake had not the liberal minded, advanced and appreciative men of the Pennsylvania railroad, Scott, Cassatt, Layng, Pitcairn, Shinn and others, perceived the merit of this invention, realized its necessity for the future, and aided in its being universally adopted by the railroads of this country and of the world. The coöperation of these people led to the introduction of the air brake on the whole Pennsylvania system and naturally on all the lines with which the Pennsylvania system exchanged business, and has resulted in saving of life and property that cannot be estimated. So the air brake grew and prospered, in fact became so much a part of the railroad system of the United States that any railroad new or old which does not have it on its engines and passenger cars would be considered as operating under dangerous conditions. It is impossible to overestimate the value of air brakes in railroad operation. Of all safety appliances, it is probably the most important. It has reduced the distance in which a train can be stopped to one-fifth of the distance in which it could be stopped by hand brakes, or perhaps even less; that is, it has been shown in actual trials that a train of 50 cars running at 40 miles an hour cannot be stopped on a dry and level track in less than 3,000 feet by hand brakes fully manned; but under the same conditions and on the same track the same train can be stopped in 600 feet with the air brake. Indeed a fast express train with the aid of the air brake apparatus in good condition ought to be stopped from a speed of 40 miles an hour within its own length. But the most remarkable fact about the air brake, the one which shows the genius of the inventor in the brightest light, is the automatic feature. It is this feature which stops a train if it is broken in two, or if the hose is burst. It also enables the train to be stopped instantly from

any car without the loss of time necessary to communicate with the engineer. But what is of still greater importance in the automatic feature is that it makes the air brake quick-acting by storing the air under each car, and it is the quick action of the brake that makes it possible to use it on any freight train, and that will make it possible to run long and heavy passenger trains at speeds that are now seldom reached.

It should be mentioned in this connection, that General John B. Gray was the first to argue successfully that appliances similar to the air brake on passenger cars, should be placed on the drivers of locomotives, to hold that ponderous power in check and not allow it to be longer subject to the control of a fireman twisting up the trifling hand brake on the tender that generated scarcely as much resistance as the wind. Thus came the application of the brake to the drivers of these monster locomotives all over this country, notwithstanding the protest early made by many prominent mechanical men.

But there are other appliances which contribute to the safety and comfort of American travel similarly with the air brake. The exertions of the Pullman and Wagner palace car companies are among the foremost. The air brake contributes to the safety and comfort of travel, the block and signal systems guarantee the safety of passengers, but the palace car companies secure for the patrons of their coaches not merely safety, but luxury. People in America without these accessories, but in good, comfortable, wholesome cars can travel more cheaply than anywhere else in the civilized world; but if the traveler patronizes Pullman or Wagner he will not merely be transported cheaply but he will be domiciled luxuriously and will enjoy all the comforts of a first-class hotel, together with any amount of exclusiveness which he may require. Travelers moreover are safer in these cars than in any ordinary passenger coach, for the reason that they are built so strongly and so substantially. The vestibule is another element of safety as well as of comfort which has been recently introduced and which is a purely American idea. It permits passengers to pass freely from one end of the train to the other, to dine, to smoke, to read in the library car, to chat with their fellow passengers, and all without the slightest danger of being thrown from the platforms as they go from car to car. It also lessens the vibrations and oscillations of the cars in running and diminishes the liability of one platform to override the other in case of collision, thus by these two actions lessening the danger of derailment and the danger of telescoping.

Accidents have happened to passenger trains through fire and other causes that are rapidly being made less possible by the railroad managers of the country, through extra precautions which place the traveler almost in position of absolute safety today. Altogether, a man or woman of moderate means traveling in an American vestibule train can enjoy as many comforts and luxuries as the queen of England when she journeys in the royal train from London to Osborne or Balmoral, and can travel nearly as safely. The czar of Russia cannot have either the same comfort or the same security for the want of American appliances of safety.

Then again America has her platform and coupler, which dispenses with the old-fashioned link and pin and makes travel safer, in

consequence of the entire train moving practically as one body. Ezra Miller, of Dunkirk, was the first person who conceived this idea of having a close connection between passenger cars, and an automatic coupling. Some years later came Janney, of Pittsburgh, not merely with an automatic car coupler, with buffers for passenger service, which was at once adopted by the Pennsylvania Railroad company and later on by many of its connecting lines, but with the same automatic coupler for freight car service, which did away entirely with coupling by hand and thereby contributed to stopping the fatal casualties to which brakemen were continually subjected in coupling and uncoupling freight cars. There was opposition to the adoption of any automatic coupler which from its close action eliminated the slack that in former times was considered necessary to starting a heavy freight train, but this idea has practically become obsolete since what are generally known as the Burlington tests; and when the Master Car Builders' association after careful consideration had adopted the M. C. B. type of coupler as the standard of the association the many railroad companies commenced at once the use of this form of coupler. As Congress has now acted in this matter and several states have required such uniformity there is little doubt that the making of this change will be greatly accelerated and at the outside in five years from this date, or even less, the entire freight car equipment of the United States, or it might be said of North America, will be provided with automatic car couplers of the master car builders' type, each locking with and unlocking from the other. Thus the railroads will be happily freed from a practice which, on purely humanitarian grounds, should have been abolished long since, and will adopt universally a substitute which not merely on the grounds of humanity, but on those of economy and uniformity, should have been made years ago. Had the change been made ten years since it would have saved the lives of thousands of men and the suffering of their afflicted families, and it would have saved the railroads great sums paid on account of deaths and injuries. The great majority of hospital and legal expenses for the killed and injured is due to this want of uniform automatic couplers.

Minneapolis and the master car builders attending that exciting convention will ever be remembered as accomplishing one of the greatest works in the history of our railroads in deciding upon a uniform drawbar. For many years this subject had been before them. There never was a session at which it was not discussed, and it had finally reduced itself down to where there were six links and pins and six vertical hooks recommended by this association, none of which would couple with the other; and there the matter rested for years, until this decisive step was taken that threw them all out and settled upon a single type requiring that every drawbar should couple with the other. In the history of our railroads no question has been solved more important than this. All these years there has hardly been a railroad shop that has not produced its many inventive geniuses who were devoting much time and money to their own particular safety couplers, and not alone was it confined to railroad employes. So much interest centered in the question that men of almost every occupation enlisted in it until there were more than 3,000 such appliances connected with car coupling in the patent office of this country, many of them in operation on

the railroads and hardly any of them that would couple with one another. Taking the many years past there is no doubt but that more time has been spent by officers of railroads in the examination of the different devices and more thought given to the subject than to any other, and it must be a relief to all their minds to know that that question is finally settled.

One of the most complex subjects in railroad management for many years has been the question of safe heating of their passenger cars. It has been generally conceded by the great majority of railroad managers that the proper distribution and regulation of the heat within a car is best accomplished by means of circulating water, which prevents rapid changes in temperature, and thus adds to the comfort of the passengers. This system found great favor with many of the railroad companies and is exclusively used by the sleeping car companies of this country.

Railroad companies in this country delayed recognizing any method of steam heating until hasty legislation came in some of the states, which at once brought the subject before them. I say hasty legislation, from the fact that the legislators had little thought of the many perplexing difficulties forced upon the railroad companies by their action, which left them with insufficient opportunity of experimenting in one of the most important changes upon our great system. The result was the adoption of much expensive equipment which had to be displaced and today, after four years' experience, people are not altogether united as to the best method of heating passenger coaches by steam.

The application of steam to the Baker heater system was the most practical thing for the sleeping car companies to use, as it was important that they should have an auxiliary heater for use in cases where passenger locomotives were detached and they were from this or other causes without the supply of steam. It is thus that a great portion of all the sleeping cars of this country and many of the coaches are heated. Also many coaches are heated by direct steam which is applied in many different ways, none of which attain the satisfactory results that the distribution of heat by circulating water gives.

The candle lamp, with its very dim and uncertain light, as well as the oil lamps, fertile sources of inconvenience, discomfort and danger, are destined to be surely removed from the passenger cars of this country and economy equally with safety and comfort will be guaranteed by the substitution of gas or electricity. The latter involves the generation of power on the train by a dynamo or the storage of electricity on the train, or the use of independent batteries in cells, or application to the axle or wheel with mechanism constantly wearing and requiring expert employes to keep in repair. All of these methods are under certain conditions practicable, but the conditions are frequently unreliable, and often fail when their stability is most needed, and the expense is enormous. Hence compressed gas is preferred. But the gas must be of a special kind, and here again this country has been fortunate in acquiring the right to use the invention of Mr. Julius Pintsch, who realized the importance of good light to the traveling public, and who spent years in solving the problem of supplying the best illuminant and manufacturing a very rich gas which under compression will supply a car with

sufficient for several days use. He also invented the superior regulator for reduction of pressure so that the flow would correspond with that of ordinary gas in usual family use. By means of this process the old time candle and the odorous, unsatisfactory oil are being dispensed with, and the Pintsch light has popularized itself on the railroads and with the people so generally that it is abundantly evident it has come to stay and its use already on more than 50,000 coaches abroad and nearly 5,000 in America, testified unmistakably to the manner in which the light is appreciated by the traveling public. More than 200 gas works are in operation, and more than 100,000 gas receivers are in use, together with 100,000 gas regulators. The construction of the mechanism by which the gas is furnished to the car is so simple that in case of any derailment, collision, etc., the fixtures are immediately detached, the illuminant escapes into the air and there is no possibility of either combustion or explosion. Should electricity ever become practicable for train service the Pintsch light must always have place as the most satisfactory auxiliary.

We erect monuments to perpetuate in the memory of the people the heroic deeds of those who have battled bravely for the protection of the nation from internal and external foes; we pay like honors to statesmen and leaders in science and art; and surely men who like Pullman, Westinghouse, Wagner, Pintsch, Miller, Janney, Hall, together with many others who have labored unostentatiously but consistently to contribute to the safety and comfort of untold millions and have built up great industries that have given employment to many thousands of our people, deserve equally with generals, statesmen and professors of science, the monuments of grateful appreciation which a discerning public erects periodically for the world's benefactors.

SUPERANNUATION OF RAILWAY EMPLOYÉS.

L. J. SEARGEANT, GENERAL MANAGER GRAND TRUNK RAILWAY OF CANADA, AND PRESIDENT CHICAGO & GRAND TRUNK RAILWAY COMPANY.

It is distressing to a railway manager whose heart is in the right place to be under the necessity of terminating faithful services which are no longer efficient by reason of age, infirmity, or any of the ills of life to which flesh is heir. The duty becomes painful when the employé has dependents, no private means of support, and is, therefore, compelled to fall back upon the cold charity of relatives or friends. On the other hand, it is a duty to the company he represents, to take care that its business is in all its details vigorously and properly conducted. The argument may be used that engagements naturally hinge upon the performance of duty; that railway service is, like others, voluntary and transferable; that in payment of salary or wage, the company does all that it engaged to do, and that no contract existed to provide for such

contingencies. On the other hand when the employé becomes as it were part of the service, when the performance of duty results in habit which leads him to neglect opportunities, when his sympathies create an *esprit de corps*, and when the whole of those coöperating causes lead to lifelong work in the interests of one company, there seems to be a moral claim upon the benevolence of employers who have benefited by faithful, if not brilliant services, to provide some scheme of retiring allowance which will protect the individual in those dark days against penury and want.

These sentiments have influenced British railway companies in the establishment of Superannuation associations which provide such retiring allowances to clerks and others coming within the rules, and I am under the impression that most of the railway companies of Great Britain have adopted that plan.

The object of this paper is to describe the character of these associations and their practical results in the accumulation of funds to meet future contingencies.

In dealing with this question a primary consideration is the period of life when the candidate for superannuation shall be allowed to retire. That principle undertakes to make provision against the probabilities of existence after that period.

That nothing is more uncertain than the duration of human life in the individual we are reminded by daily occurrences, but as Dr. Southwood Smith remarks, "Mortality is subject to a law the operation of which is as regular as that of gravitation," or as the Hon. Elizur Wright in his fourth annual report to the legislature of Massachusetts, puts it, "Observations have resulted in scales of decrement which would vary so little from each other and from the regular curve that one must be sceptical not to believe in the existence of a carefully graded scale curve or line which nature works after as her pattern."

The probabilities of human life in America and Great Britain affect the superannuation question. My friend Mr. W. M. Ramsay, manager of the Standard Life Assurance company's office in Montreal, informs me that the expectation of life in the States is higher than that in England and that calculations are deduced from a table of mortality representing the actual experience of the Mutual Life Insurance company. It is, he adds, alleged that the duration of life in Canada is higher than either in the United States or England, but he doubts if that was ever proved.

Mr. Seargent P. Stearns, representative of the New York Equitable Life Association of Montreal, also confirms the statement that the expectation of life, according to the American table adopted by the Insurance department of the state of New York and generally used in the United States, is higher than in England. Vital statistics, however, appear to have been somewhat neglected on this continent.

The rates charged by American offices as a general rule are less than those charged in England, but as pointed out, one important consideration and reason for this may be that the American offices obtain a higher rate of interest on investments here, the English rate being 3 to 3½ per cent. and the American 5 per cent. or over, according to the conservative management of the company.

Annexed to this paper will be found a table "A" showing what the

probabilities are assumed to be. This table is extracted from "A Treatise on the Principles and Practice of Life Insurance" by Nathan Willey. It indicates varying expectations on comparing English and American experience,—for example at the age of 21 the Carlisle estimate gives an expectation of 40.75 years and the American of 41.53 of life.

At 30, the Carlisle	-	-	-	-	-	34.34	years
the American	-	-	-	-	-	35.33	"
At 40, the Carlisle	-	-	-	-	-	27.61	"
and the American	-	-	-	-	-	28.18	"

but at the ages of 50, 60 and 70 the expectations are longer by the Carlisle than the American experience. It will be seen that at the age of 60 when, as a rule, superannuation is permissible, the expectations of life are according to the various tables 13.21, 14.34, 13.53, 14.09, and by "combined experience" 13.77 years. These expectation tables are interesting, for the relative longevity of the inhabitants of Great Britain and America has been a good deal canvassed. On that general question, however, I venture to borrow the following from an admirable essay on "Three Systems of Life Insurance" by Mervin Tabor, actuary of the insurance department of Illinois and manager of the Bureau of Life Insurance Information.

Mr. Walford says—"That the average duration of life in Great Britain at the present time (1867) is 41 years; in France 40; in Sweden 39; in other countries progressively downwards until the average throughout the world is found to be only 33 years. In Rome 1300 years ago the average was much the same as in England now. We know however that the duration of life at all ages has increased considerably during the past century. Amongst the nobility and gentry of England, the expectation of life at the age of 84 is found to be four years, and amongst the poor fishermen of Ostend it is precisely the same."

An object which English railway companies have had in view in the establishment of superannuation fund associations has not only been to provide for members after their active employment has been dispensed with, but to secure permanence of service, and the relief of the individual from anxieties attendant upon the contemplation of the period of inability to provide for himself and his family,—in fact it has been thought that superannuation associations would permanently attach to the service better men and secure from them the better performance of their duties.

The British system has the direct authority and approval of parliament and of shareholders who entirely and liberally sympathize with the effort by this means to raise the standard of efficiency.

The royal assent was given to an act for establishing the "Railway Clearing System Superannuation Fund Association" in 1873 which recited that it was expedient that provision should be made whereby the salaried officers and clerks of any railway company then or thereafter admitted as partners to the clearing system and the salaried officers and clerks of existing or future joint committees for railway purposes having separate staffs of salaried officers and clerks might become contributing members of the fund, and that it was expedient that such railway companies and joint committees should be authorized

to contribute to the fund. Under the organization, managing committees are appointed, trustees, and arbitrator, a consulting physician, and secretary. The payment of each member of the fund per calendar month was to be $2\frac{1}{2}$ per cent. on his salary for that month, subject to such additions thereto and exemptions therefrom as the rules prescribe. The act makes it lawful for and incumbent on the clearing house committee to contribute a like sum of $2\frac{1}{2}$ per cent. for all their salaried officers and clerks and it was made lawful for any railway companies parties to the clearing house system and also for any joint committee to contribute.

In case any railway companies, parties to the clearing system, and having separate superannuation funds established for the benefit of their salaried officers and clerks respectively, receive into their service salaried officers or clerks contributing members of the clearing house fund, those companies were authorized to subscribe in respect of such clerks. The railway clearing house committee may sue for contributions or subscriptions due, and clause 17 of the act provides that the accumulated fund is to be vested in trustees who are to keep in their names, at some bank, such balance, as it may in their judgment be convenient to keep for the purposes of the fund, and to invest the fund and the accumulated income thereof at their discretion in government stock, exchequer bills, metropolitan consols, Bank of England stock, securities of the Government of British India, or debenture stock of any railway company in Great Britain, paying dividends on its ordinary capital.

The committee is to consist of twelve persons, six appointed by the clearing committee, and six appointed by the contributing members. The act gives provision for amending and altering the rules.

An act to amend the foregoing received the royal assent on the 28th April, 1884; it extended the power of subscription to the clearing house committee to other railway companies than those at first contemplated; it further extended the choice of investments and authorized them in the public stocks, or funds, or government securities of the United Kingdom or India, or any colony or dependency of the United Kingdom, or on mortgage of freehold or copyhold property in England or Wales, or heritable securities in Scotland, or in or upon Bank of England stock, or the guaranteed preference or debenture stock, mortgages, bonds, or other legal securities of any railway company in the United Kingdom, or India or any colony, or dependency of the United Kingdom, which has paid dividends on its ordinary stock for the two years next preceding the time of investment, or on the security of any metropolitan, county, borough or other rates authorized to be levied and mortgaged by act of Parliament.

It was also made lawful for the clearing house committee mentioned in the clearing act (Ireland) 1860 to subscribe to the fund.

The general rules of the association provided for the admission of salaried officers and clerks as authorized by the act. Membership is compulsory upon every officer not over 45 years of age who shall be transferred from the weekly wage class to the salaried class. Every salaried officer, or clerk, admitted a contributing member, whose age at the date of his joining the fund shall be above 28, has in addition to his ordinary contribution to pay an extra amount according to a fixed scale varying from 1 per cent of salary at the age of 29 to 5 per cent

at the age of 45. There is a provision as to the terms on which one or more years may be added to membership.

Any contributing member leaving the service of his own accord from any cause other than ill health or pecuniary fraud, is to receive back (but without interest) his own contributions including any payments he may have made under certain rules, but not including extra payments he may have made under other rules.

Contributing members who may be dismissed from the service from causes other than ill health, or pecuniary fraud, or becoming non-eligible by being transferred to the weekly wage class are entitled to have like refunds.

Any contributing member leaving the service on account of ill health before he has been a member for 10 years is to have a refund equal to his own contributions and 4 per cent simple interest on the sum from the dates of payment until repayment, but his claim upon the fund then ceases.

If any contributing member be dismissed or should retire from service on account of having committed a pecuniary fraud, his contributions and claim on the fund are forfeited.

The decision of the committee in all matters are final.

If any contributing member dies in the service before being superannuated, his representatives are to receive a sum equal to his own contributions including extra payments and 4 per cent. interest on the sum.

If any member who died after being superannuated, his own contributions less the amount he may have received by way of superannuation allowance, is to be paid to his representatives without interest.

Any contributing member who has been a member for ten years or upwards, including any additional years added to his membership under the rules is, on attaining the age of 60 years, or at any time afterwards, permitted to cease his contributions and be superannuated, and is, thereupon, for the rest of his life, entitled to receive from the fund a superannuation allowance, or annuity, according to the following scale computed upon the average of the salary which he has contributed, provided he thereupon retire from service.

Years of contribution completed.	Yearly amount of superannuation in percentage of average salary.	Years of contribution completed.	Yearly amount of superannuation in percentage of average salary.
10	25	28	46
11	26	29	47
12	27	30	48
13	28	31	50
14	29	32	51
15	30	33	52
16	32	34	53
17	34	35	54
18	35	36	55
19	36	37	56
20	37	38	58
21	38	39	60
22	39	40	61
23	40	41	62
24	42	42	63
25	43	43	64
26	44	44	65
27	45	45 and upwards.	67

Any claim for annuity to which a member may be entitled may be commuted by the committee by a single payment, the amount thereof to be determined by the actuary, and thereupon such member ceases to have any claim upon the fund.

Any contributing member who has been such ten years or upwards, and who becomes incapacitated from performing his duties by reason of infirmity of body or mind, not the result of his own misconduct, is entitled to be superannuated on production of medical certificates subject to certain conditions.

Two consulting actuaries have been appointed, who after the expiration of ten years, and thereafter every five years, are to examine the state of the fund and report upon its liabilities. Any differences of opinion between the consulting actuaries being referred to a third.

Substantially the foregoing is the scheme of the Railway Clearing System Superannuation Fund association.

The accounts up to the year ending September 30, 1892, show the total receipts during nineteen years of this superannuation fund as being £565,831. (I omit shillings and pence), of which, after deducting the expenses of management, fees, cash paid on account of members superannuated, cash paid to representatives of deceased members and cash returned to members leaving the service, there remains a balance of £477,619. invested mainly in government and railway securities,

The total number of members who had joined to September, 1892 was 12,611. Of this number there had retired from the service 4,574, died 591, superannuated 110, leaving a remainder of 7,336 being the number of members contributing to the fund at that date.

The valuation of the fund was made on the 30th September, 1888, by Messrs. Ralph T. Hardy and Spencer C. Thomson, the actuaries appointed, and they reported that the deaths showed a lower rate of

mortality than the English Life Table, which feature of the fund is confirmed by that of other similar associations; that if all the members retired at the age of 60 under certain conditions the fund would be insufficient by £318,037 or £202,463; that if all the members retired at the age of sixty-five with certain provisos, the invested funds were in excess of the estimated liabilities by £50,203 or £59,893 respectively.

On the assumption that retirement would take place at the average of $62\frac{1}{2}$ the probable position of the fund is reported as showing a deficiency of £71,285, and the actuaries recommend that the benefits remain unaltered, on the understanding that the rate of interest is maintained at 4 per cent but that all future admissions be upon terms that are fully adequate.

The London and North Western Railway company have established two superannuation associations, the first for officers and salaried clerks, and second the "Workingmen's provident and pension fund," subscribed to by the weekly wages staff.

The exhaustive reports upon the objects and operations of these associations with which I have been favored are so interesting that I append them to this paper.

The Superannuation Fund association has been in operation for 40 years. It will be seen from the balance sheet that the total receipts during those 40 years amounted to £974,845, and that after paying all the claims upon the fund under the rules the balance in the hands of the London and North Western railway company at interest amounted, on the 31st March last, to £742,537.

A very valuable report made by three actuaries on the Superannuation fund assumes, that as in the case of the railway clearing house, if retirement were universal at the age of 60 there would be a deficiency: if at the age of 65 there would be a surplus, but it is assumed that the probable financial position lies midway between these ages, and that pensions will be taken at the age of $62\frac{1}{2}$. The fund, therefore, for all practical purposes is considered solvent.

I am also favored with the rules of the Great Western railway Salaried Officers' Superannuation fund, and also of a like fund established for the purpose of providing a weekly allowance to servants of that company after a length of service or when permanently disabled from filling their usual employment by accident occurring in the discharge of duty, or by bodily or mental infirmity.

The first named association provides that the members make a contribution of $2\frac{1}{2}$ per cent from their salaries, the company at the end of each half year contributing out of its revenue a sum equal in amount to that which, during the same half year, has been contributed by the officers and clerks.

The Great Western Railway act of 1864 provided for the establishment of this superannuation fund, the benefits and application of which are substantially the same as those above referred to.

Clause 6 of the rules provides that every member who shall retire from the service at 60 years of age shall be entitled by way of superannuation to an annual allowance for the remainder of his life, for and in respect of every year of his membership equal to one-fiftieth of his maximum salary during that period, provided that such superannuation

allowance may in no case exceed in amount two-thirds of the maximum salary of any officer or clerk.

The statement of accounts to the 31st January, 1893, shows that the Superannuation Fund association has received during the 28 years ended 31st January, 1893, £492,224, and that investments exist representing the net balance in hand after deductions according to the rules of £440,631. At the end of January last the number of members contributing was 3,886.

The Servants' Pension fund consists of the moneys received by certain associations belonging to companies consolidated with the Great Western, and membership contributions of 3d. per week and in certain cases 6d. per week, as well as payments out of the revenue of the Great Western equal in amount to the sum which during the same half year had been realized by the ordinary contributions of the members to the fund. Any member who after 30 years membership, under the rules has attained the age of 55 years is entitled on his retirement from the service of the company to a pension of 10 shillings per week, with an additional allowance of one shilling per week for every completed term of five years membership beyond the first 30 years.

Any permanently disabled member not entitled to pension under the rules, may be awarded out of the fund 4 shillings a week in addition to payment by the Great Western Provident society until he become entitled to a pension.

The rules make further provision for variation of allowances, payments to widows or children, and reimbursement of members in cases of leaving or being dismissed from the service.

The Servants' Pension fund to the 31st December, 1892, shows a total receipt of £118,328 and a net balance of £108,071.

The Great Northern Superannuation association covers three classes, the principal officers and clerks, station masters, inspectors, firemen and engine drivers and servants of any other grade which may from time to time be admitted by the managing committee.

The rules provide for a scale of superannuation allowances for joint contribution substantially as in the above mentioned cases and the retiring age is put at 60. The total receipts from the 1st January, 1875, to the 31st December, 1892 (18 years) were £338,318 and the balance sheet after making provisions for payments under the rules shows its present investments as amounting to £280,812. Sir Henry Oakley tells me that the whole of the money is invested with the company and returns 4 per cent.

The London, Brighton and South Coast Superannuation fund provides that all principal officers, their assistants, clerks, station masters, booking clerks, ticket collectors, guards, policemen, signalmen, points-men, permanent way superintendents, inspectors, and timekeepers, locomotive and carriage foremen and engine drivers, whose ages shall not exceed 40 years at the time of admission, shall upon their admission to the service and so long as they continue therein be contributing members, and all other officials promoted to either of those ranks. The contributions to the fund are joint, the members contributing 2½ per cent of their salaries and the company 2½. The secretary and general manager of this company informs me that their corporation contemplate some

modifications in the interest of members such as increasing the maximum pension to two-thirds instead of one-half the average salaries and the refunding to representatives of deceased members the difference between amounts paid in pensions and the amounts annually subscribed by them.

The Great Eastern company have three superannuation or pension funds, one applicable to salaried officers contributing $2\frac{1}{2}$ per cent of salaries, the company supplementing the fund to a like extent,—the second pension fund association is for the exclusive benefit of the servants of the company above 18 years of age whose wages exceed 12 shillings a week, and who are not entitled to the benefits of the superannuation fund. The contributions of the men according to the class to which they belong are from 5d to 2d per week, the company contributing like amounts. Additional contributions are allowed for back payments. Retirement on pension is permissible at the age of 65 years to members who shall have made payments to the fund during membership equivalent to contributions applicable to their class for 30 years.

The third scheme of retirement is called the Supplemental Old Age relief fund. It was established by the directors of the company for the benefit of their servants on the wages staff between the ages of 55 and 65. The member has the option of making a payment of £100 thus securing the maximum pension of 10s a week, either in a lump or by weekly installments. Compound interest at the rate of 4 per cent is allowed and every payment (including interest) of £10 will secure a pension of 1 shilling a week to the member on retirement at, or after, 65 years of age. There are rules in favor of the member in case of death.

The Manchester, Sheffield and Lincolnshire railway company, as well as the South Eastern railway, are parties to the clearing-house system of superannuation.

The North Eastern railway company have a superannuation fund scheme applicable to all its salaried officers and servants, but no established fund of the kind applicable to the wages staff, although Mr. Gibb, the general manager of the line, informs me that such a scheme is under consideration at the present time.

An interesting fact in connection with the North Eastern superannuation fund is that it has been found that the average age at the date of coming on the fund of those who have been pensioned was $67\frac{1}{4}$ years.

The Caledonian Railway company also have an association on the same basis as the foregoing. It has been in existence for 20 years. The present membership is 1405. There have died during that period 195, there have left the service 1432 and there have been superannuated 50. The funds of the association are vested with the company and receive the same interest as is paid from time to time on their debenture debt. Originally the pension age was 60, but on the suggestion of their attorney it has been raised to 65 for all members joining on and after the 1st July, 1888.

The London & South Western scheme contemplates membership on the part of every salaried officer who, on the 1st May, 1864, was not less than 20 years of age and under 50. The contribution is the same as the foregoing, $2\frac{1}{2}$ per cent upon salaries by the member and $2\frac{1}{2}$

per cent by the company. The retiring age is 60. The allowances made on retirement are subject to tables of annuities attached to the charter of the association.

The Lancashire and Yorkshire superannuation fund was established in 1873 and is substantially on the same basis as the above mentioned. The total receipts of the association from July 1, 1873, to June 30, 1892, amounted to £136,754, and the balance sheet shows an amount in the hands of the Lancashire and Yorkshire Railway company, after deduction according to the rules of £113,258.

The North British railway association fixes the age of 40 as that up to which members are eligible and contains a provision that officers upwards of 40 at the time of entering the service may be admitted at the option of the committee by special arrangement. The company contributes also in this case an equal amount to that paid by the members. The total amount contributed from 1st October, 1883, to the 1st December, 1892, appears to have been £83,768, and the net amount at that date £65,771.

The Great Southern and Western railway company have three funds connected with that company, the first the superannuation fund for officers, the second superannuation fund for enginemen and firemen, and the third a sick fund for men.

The Superannuation Fund association shows a total receipt during 13 years of £34,216, and a net balance of £29,580.

In the case of the locomotive fund each member subscribes 2 shillings per week and there are at present 253 members. On the 31st of December the fund amounted with interest to £32,367, and with repayments and allowances under the rules a balance remained of £20,838, more than sufficient to pay off all liabilities.

It remains only to deal with the superannuation scheme which has been established in connection with the Grand Trunk railway company of Canada. This association was formed in 1874 and was based upon the English practice. The members were to consist of salaried officers, clerks, passenger and freight agents, telegraph operators, road masters, inspectors in any department and foremen in the mechanical department. The applicant was eligible if not over the age of 37 years. Payments $2\frac{1}{2}$ per cent by the member, $2\frac{1}{2}$ per cent by the company. The age of retirement is 55 years and the member is entitled in the way of superannuation to an annual allowance for the remainder of his life equal to one sixtieth of his then salary for and in respect of every year during which he shall have been a member of the fund, but such superannuation allowance may in no case exceed in amount two-thirds of the average annual salary of such officer, clerk or other employé for and in respect of the years during which he shall have contributed to the fund. The usual provision exists as to return of contributions under certain circumstances. The investment of securities is limited in the discretion of the committee of management to Dominion government securities, provincial or municipal bonds or stock, Grand Trunk mortgage bonds, or debenture stock, Chicago & Grand Trunk mortgage bonds, mortgages on real estate in the Dominion of Canada. The total amount received to the 31st December, 1892, was \$389,682.14 = £80,071. After payments of refunds and other outgoings the net amount in hand or invested on the 31st December was \$357,719.49 = £73,504. The prac-

tical working and solvency of the fund has been the subject of investigation during two quinquennial periods by the actuaries Messrs. Ralph P. Hardy and Frederick Hendriks of London, England. A statement made to the members by the then secretary of the association, copy annexed, embodies the views of those gentlemen who stated their practical conclusion to be that for all reasonable purposes it may fairly be taken that the fund was solvent in 1886. The rate received on investments was then $5\frac{1}{2}$ per cent. The entire amount invested yielded 5.47 per cent per annum. A report to the same effect was made by those gentlemen in their valuation for the previous quinquennial period ending 31st December, 1881. A third quinquennial valuation by the actuaries is now being made.

From the foregoing it will be seen that the English railway companies have for many years recognized the principle of superannuation payments to their salaried officers and clerks; that some companies have extended the same principle to the lower grades of the service,—that is, the men who are paid by wages as contra-distinguished from salaries; that these funds have in the aggregate on the expiration of years amounted to very large sums; that they are derived as a rule from the deduction of $2\frac{1}{2}$ per cent from the salaries of officers, supplemented by like payments on the part of the company; that the age for optional retirement is generally 60; that the rate of interest in England on investments is lower than on the American continent; that it may be inferred from the almost universal adoption of the principle that its advantageous results have been realized by experience; that members appreciate its benefits; (I see upon that point that Mr. Newdegate has recently presented to Parliament a petition signed by 220 employés of the London & North Western railway out of 235 at the company's works in Nuneaton praying for permission to contract themselves out of the Employers' liability bill. Their reason for so doing is that the company subscribes handsomely to an accident insurance fund, and it is feared if the men came under the new act the fund would be a heavy loser by the company withdrawing its support) that the superannuation principle has the effect of bringing about more satisfactory relations between employers and employed; that it leads to permanence of service; that the tendency of the employed is not to retire from active occupation until compelled or induced from circumstances to adopt that course, as indicated in the case of the North Eastern association on which the actual retirement took place at the average age of $67\frac{1}{4}$ years, and other experience.

I am greatly indebted and have to thank the following gentlemen for information contained in this paper affecting their respective companies, viz:

Sir Henry Oakley, general manager Great Northern railway.

Sir Myles Fenton, general manager South Eastern railway.

Mr. Hy. Lambert, general manager Great Western railway.

Mr. F. B. Ormsby, general manager Gt. South'n & West'n (Ireland) ry.

Mr. Joseph Tatlow, general manager Mid. Gt. West'n of Ireland ry.

Mr. Wm. Birt, general manager Great Eastern railway.

Mr. Wm. Pollitt, general manager Man. Shef. & Lin. railway.

Mr. Geo. S. Gibb, general manager North Eastern railway.

Mr. James Thompson, general manager Caledonian railway.

Mr. J. H. Stafford, general manager Lan. & Yorkshire railway.
 Mr. J. Conacher, general manager North British railway.
 Mr. Geo. P. Neele, superintendent Lon. & North Western railway.
 Mr. A. Sarle, secretary & gen'l manager Lon. Brigh. & South Coast ry.
 Mr. C. M. Scotter, general manager Lon. & South Western railway.
 Mr. W. Barnard, sec'y Ry. Clearing system and Superannuation fund assn.

SUPPLEMENTAL TABLES.

A.

EXPECTATION OF LIFE BY DIFFERENT TABLES.

Age.	North-ampton	Car-lisle.	Farr No. 3 Males.	Com-bined Ex-per-ience.	Am-erican Ex-per-ience.	Age.	North-ampton	Car-lisle.	Farr No. 3 Males.	Com-bined Ex-per-ience.	Am-erican Ex-per-ience.
1.....	32.74	44.67	46.65	.....	.....	53.....	16.54	18.97	17.67	18.16	18.79
2.....	37.79	47.55	48.83	.....	.....	54.....	16.06	18.28	17.06	17.50	18.09
3.....	39.55	49.81	49.61	.....	.....	55.....	15.58	17.58	16.45	16.86	17.40
4.....	40.58	50.76	49.81	.....	.....	56.....	15.10	16.89	15.86	16.22	16.72
5.....	40.84	51.24	49.71	.....	.....	57.....	14.63	16.21	15.26	15.59	16.05
6.....	41.07	51.16	49.39	.....	.....	58.....	14.15	15.55	14.68	14.97	15.39
7.....	41.03	50.79	48.92	.....	.....	59.....	13.68	14.92	14.10	14.37	14.74
8.....	40.79	50.24	48.37	.....	.....	60.....	13.21	14.34	13.53	13.77	14.09
9.....	40.39	49.57	47.74	.....	.....	61.....	12.74	13.82	12.96	13.18	13.47
10.....	39.78	48.82	47.05	48.36	48.72	62.....	12.28	13.31	12.41	12.61	12.86
11.....	39.14	48.04	46.31	47.68	48.08	63.....	11.81	12.80	11.87	12.05	12.26
12.....	38.49	47.27	45.54	47.01	47.44	64.....	11.35	12.31	11.34	11.51	11.68
13.....	37.83	46.50	44.76	46.33	46.82	65.....	10.88	11.79	10.82	10.97	11.10
14.....	37.17	45.74	43.97	45.64	46.16	66.....	10.42	11.27	10.32	10.46	10.54
15.....	36.51	44.99	43.18	44.96	45.50	67.....	9.95	10.75	9.83	9.96	10.00
16.....	35.85	44.27	42.40	44.27	44.85	68.....	9.50	10.23	9.36	9.47	9.48
17.....	35.20	43.57	41.64	43.58	44.19	69.....	9.05	9.70	8.90	9.00	8.98
18.....	34.58	42.87	40.90	42.88	43.53	70.....	8.60	9.15	8.45	8.54	8.48
19.....	33.99	42.16	40.17	42.19	42.87	71.....	8.17	8.65	8.03	8.10	8.00
20.....	33.43	41.46	39.48	41.49	42.20	72.....	7.74	8.16	7.62	7.67	7.54
21.....	32.90	40.75	38.80	40.79	41.53	73.....	7.32	7.72	7.22	7.26	7.10
22.....	32.39	40.03	38.13	40.09	40.85	74.....	6.92	7.33	6.85	6.86	6.68
23.....	31.87	39.31	37.46	39.39	40.17	75.....	6.54	7.00	6.49	6.48	6.28
24.....	31.36	38.58	36.79	38.68	39.49	76.....	6.18	6.99	6.15	6.11	5.88
25.....	30.85	37.86	36.12	37.98	38.81	77.....	5.83	6.40	5.82	5.76	5.48
26.....	30.33	37.13	35.44	37.27	38.11	78.....	5.48	6.11	5.51	5.42	5.10
27.....	29.82	36.40	34.77	36.56	37.43	79.....	5.11	5.80	5.21	5.09	4.74
28.....	29.30	35.68	34.10	35.86	36.73	80.....	4.75	5.51	4.93	4.78	4.38
29.....	28.79	34.99	33.43	35.15	36.03	81.....	4.41	5.20	4.66	4.48	4.04
30.....	28.27	34.34	32.76	34.43	35.33	82.....	4.09	4.93	4.41	4.18	3.71
31.....	27.75	33.68	32.09	33.72	34.62	83.....	3.80	4.65	4.17	3.90	3.39
32.....	27.24	33.02	31.42	33.01	33.92	84.....	3.58	4.39	3.95	3.63	3.08
33.....	26.72	32.36	30.74	32.30	33.21	85.....	3.37	4.13	3.73	3.36	2.77
34.....	26.20	31.68	30.07	31.58	32.50	86.....	3.18	3.90	3.53	3.10	2.47
35.....	25.68	31.00	29.40	30.87	31.78	87.....	3.01	3.71	3.34	2.84	2.19
36.....	25.16	30.32	28.73	30.15	31.07	88.....	2.86	3.60	3.16	2.59	1.91
37.....	24.64	29.63	28.06	29.44	30.35	89.....	2.66	3.47	3.00	2.35	1.66
38.....	24.12	28.95	27.39	28.72	29.62	90.....	2.41	3.28	2.84	2.11	1.42
39.....	23.60	28.27	26.72	28.00	28.90	91.....	2.08	3.26	2.69	1.89	1.19
40.....	23.07	27.61	26.06	27.28	28.18	92.....	1.75	3.27	2.55	1.67	.98
41.....	22.56	26.97	25.39	26.56	27.45	93.....	1.37	3.48	2.41	1.47	.80
42.....	22.04	26.34	24.73	25.84	26.72	94.....	1.05	3.53	2.29	1.28	.64
43.....	21.54	25.71	24.07	25.12	25.99	95.....	.75	3.53	2.17	1.12	.50
44.....	21.03	25.09	23.41	24.40	25.27	96.....	.50	3.46	2.06	.99	.....
45.....	20.52	24.45	22.76	23.69	24.54	97.....	.....	3.28	1.95	.89	.....
46.....	20.02	23.81	22.11	22.97	23.86	98.....	.....	3.07	1.85	.75	.....
47.....	19.51	23.17	21.46	22.27	23.08	99.....	.....	2.77	1.76	.50	.....
48.....	19.00	22.50	20.82	21.56	22.36	100.....	.....	2.28	1.68	.....	.....
49.....	18.49	21.81	20.17	20.87	21.63	101.....	.....	1.79	.....	.....	.....
50.....	17.99	21.11	19.54	20.18	20.91	102.....	.....	1.30	.....	.....	.....
51.....	17.50	20.39	18.90	19.50	20.20	103.....	.....	.83	.....	.....	.....
52.....	17.02	19.68	18.28	18.82	19.49	104.....	.....	.50	.....	.....	.....

B.

LONDON & NORTHWESTERN RAILWAY PROVIDENT AND PENSION SOCIETY.

A Pension Fund for the benefit of the weekly wages staff of the London & Northwestern railway company, in all departments exclusive of the locomotive (for which a separate fund, since dissolved, was formed), was established on the 1st of May, 1883, the main features of which were as follows:

Staff Eligible.—All men then in the service who were over 18 and under 55 years of age and in receipt of not less than 12s. per week were admitted to the fund provided they elected to join within a period of six months from its formation, and the company's regulations required that in future those not already members should, if eligible, join upon receiving an advance of wages, and that all new men should become members on their appointment.

Terms of Membership.—Men under 40 years of age were admitted without any back payment, those over 40 being required to pay the premiums back to their 40th birthday, by double weekly payments (including current premium) if under 50, and by treble weekly payments if over that age.

Rate of Members' Contributions.—First-class members, 2d. per week. Second-class members, 1d. per week. Persons joining the fund as second-class members could only subsequently become first-class members on receiving an advance of wages from a sum below 25s. per week to 25s. or upwards, premiums being paid back to the age of 40 if over that age at the time of transfer.

Company's Contribution.—One penny per week per member, irrespective of class, commencing, however, with a minimum of £3,000 per annum, and being restricted at present to a maximum of £6,000 per annum. The London & Northwestern company acts as the society's bankers, and allow 4 per cent. interest on the funds as they accrue.

Weekly Pensions, etc..—First-class, 10s. a week; second-class, 7s. a week. A return of half-premiums is also made to members leaving the service from other causes than misconduct or voluntary resignation.

Conditions under which Pension is Payable.—The pension is payable to members incapacitated for continuing their employment after the age of 60; at 65 it can be claimed irrespective of the health of the member or his fitness for work.

General Remarks.—The number of members at the end of 8 months from the date of the establishment of the fund (including the period of 6 months during which admission could be voluntarily obtained) was 16,609.

No claims for pensions could arise until after the 1st of May, 1888, when the fund had been in operation for five years, and men who were approaching the maximum age of 55 when admitted on the 1st of May, 1883, began to attain 60. At the end of this year (1888) the number of members had grown to 21,190, and the financial condition of the fund was as follows:

Accumulated members' contributions.....	£29,723	0	9
“ company's “	25,528	13	1
“ interest	6,153	11	9
Total	£61,405	5	7

which, after deducting working expenses, left a balance to the credit of the fund on 31st December, 1888, of £59,071 4 10, with an annual income of about £13,000.

As far back as the 1st January, 1874, a provident society had been established for the same class of men, and, as the members of that society and of the pension fund had, in the year 1888, become to a great extent identical, it was considered that an advantage would accrue to both by an amalgamation of the two funds, and this was accordingly carried out, as from the 1st January, 1889, from which date the amalgamated societies became known as the “Provident and Pension Society.”

The balance of the two funds at the time of the amalgamation were:

Provident society	£40,058	8	6
Pension fund	59,071	4	10
Total	£99,129	13	4

and of the numbers:

Provident society	23,515
Pension fund	21,190

The amalgamation of the two societies rendered necessary some slight modification of the original rules of the pension fund, and for 6 months after the amalgamation those men who had not previously joined the fund were allowed a further opportunity of becoming members on similar conditions to those in operation during the first 6 months after the pension fund was established, provided their age did not exceed 50, after that date the maximum age for admission was reduced to 45.

Provision was also made that members who, under the rules of the Provident society, were entitled, on becoming incapacitated for work, to a retiring gratuity of £12 10s. for each completed period of five years' membership up to a maximum of £50, should have the option of giving up such retiring gratuity and receiving an additional pension of 6d. per week for each amount of £12 10s. so relinquished.

A further alteration has recently been made in the rules providing for the payment of *half pension* to members breaking down at any time after 20 years' service, the member being allowed, if necessary, to complete 20 years' membership by paying, in one sum, the amount of premiums required.

Since May, 1888, the society has pensioned 137 members who have broken down between the

ages of 60 and 65, 19 of these have died, and the number now in receipt of pension is 118. There are also 5 members receiving half pension.

No claim for the pension has yet been made by a member on attaining the age of 65, and few claims of this sort are expected for some time, as it is only such members who were closely approaching the age of 55 at the time the fund was established that can at present have attained 65, and it is further considered that able-bodied men will not retire upon the pension so long as the company allows them to continue in their positions.

The number of "provident" members on the 31st December, 1892, was 31,239, and the number of "pension" members 28,530, the balance to the credit of the society being £143,151 16s. 8d.

No separate accounts are kept, but it is computed that £120,000 of this sum is due to the credit of the pension part of the society, the reduction in the provident portion of the balance being due to the very heavy demands that have been made upon the society during the last three years in consequence of the repeated epidemics of influenza by which the county has been visited.

No actuary was consulted when the pension fund was established, nor has any subsequent actuarial valuation been made.

The members of the society elect five delegates in each of the 12 districts into which the line is divided, and the delegates in their turn appoint a committeeman for each district, who, together with three gentlemen nominated by the directors of the company from the committee of management, meet monthly for the transaction of the society's business.

A copy of the last annual report and statement of accounts is annexed.

LONDON & NORTH WESTERN RAILWAY PROVIDENT AND PENSION SOCIETY.

REPORT PRESENTED TO THE ANNUAL GENERAL MEETING OF DELEGATES HELD AT CREWE, ON FRIDAY, 24TH FEBRUARY, 1893.

The committee beg to present the annexed statement of accounts, duly audited, for the twelve months ending 31st December, 1892, showing a total balance to the credit of the members, of £143,151 16s. 8d.

The heavy claims upon the funds of the society, to which attention was drawn in the last report, have been maintained during the past year, the large amount paid in sick allowances being chiefly due to a recurrence of the influenza epidemic, which is again estimated to have entailed upon the society an increased expense of about £7,000.

A considerable number of the old servants of the company retired from the service during the year 1892, thus largely increasing the claimants for the retiring gratuity, and the payments made by society under this head.

The adoption by the delegates at the special meeting, held on the 1st November, 1892, of a scheme for the payment of half pensions, under certain conditions, to members becoming incapacitated before attaining the age of 60, has rendered necessary the modification of several of the existing rules which have been considered by the committee, and are now submitted for confirmation.

The total number of members of the society on the 31st December, 1892, was 32,856 compared with 32,277 on the 31st December, 1891.

The following figures show the working of the society during the past four years:

MEMBERS CONTRIBUTING FOR "PROVIDENT" BENEFITS.—SCALES "A" "B" AND "C."

The number of members contributing for "provident" benefits on 31st December, 1892, was 31,239, against 30,521 on 31st December, 1891, showing an increase of 718.

Since the allowance at the death of a member was introduced, payments amounting to £23,302 6s. 6d. have been made to their representatives, the number of cases during the last four years being as under:

	1st Class Members.	2nd Class Members.	Total.
1st January to 31st December, 1889.....	162	2	164
do do do 1890.....	197	10	207
do do do 1891.....	232	3	235
do do do 1892.....	203	6	209

Since the 26th February, 1884, when this form of allowance was first adopted, a total sum of £6,475 has been paid to members upon the death of their wives, the number of cases during the last four years having been as follows:

	No. of Cases.	Amount.
1889.....	126	£630
1890.....	166	£830
1891.....	193	£965
1892.....	194	£970

Weekly allowances, amounting in the aggregate to £221,955 9s. 1d. (including the sum of £2,957 16s. 8d. paid by weekly instalments for retiring gratuities or in excess of 52 weeks) have been paid to sick members since the commencement of the society, the number of cases during the last four years having been as follows:

	No. of Cases.	Weeks.	Days.
1889.....	9,411	28,101	2¼
1890.....	14,622	38,554	2½
1891.....	15,709	43,334	2½
1892.....	15,351	42,693	3¼

Extended weekly allowance, under rule 22, amounting to £2,761 8s. 11d. (in addition to payments in one sum to the extent of £772 7s. 2d.) has been granted; the number of cases during the last four years having been as under:

	No. of Cases.	Duration.	
		Weeks.	Days.
1889.....	17	245	5
1890.	19	138	4
1891.....	21	258	1
1892.....	33	411	3

The number of sick members on the allowance list at the end of December, 1872, was 890. Retiring gratuities, amounting to £17,801 16s. 3d. (in addition to £196 7s. 9d. by weekly instalments), has been paid since this form of allowance has been introduced: the number of cases during the last four years having been as follows:

	No. of Cases.	Amount Paid.
1st January to 31st December, 1889.....	62	£1,522 10s.
do do 1890.....	78	£2,174 15s.
do do 1891.....	104	£3,101 16s.
do do 1892.....	131	£4,030 16s.

MEMBERS CONTRIBUTING FOR PENSION BENEFITS.—SCALES "A" "B" AND "C."

The number of members contributing for pension benefits on 31st December, 1892, was 28,530, against 27,493 on 31st December, 1891, showing an increase of 1,037.

The number of members who have come upon the pension list during the year is 53, making a total of 103 in receipt of the allowance at 31st December, 1892, fifteen of the members drawing pensions having died.

The total payments for pensions amount to £3,119 19s. 5d.

G. P. NEELE, Chairman.
L. H. VINER, Secretary.

Euston Station, 10th February, 1893.

LONDON & NORTHWESTERN RAILWAY PROVIDENT AND PENSION SOCIETY.

STATEMENT OF RECEIPTS AND EXPENDITURES TO THE 31ST DECEMBER, 1892.

Debit.

RECEIPTS.	Total to 31st Dec. 1890.*	Twelve months ending 31st Dec. 1891.	Twelve months ending 31st Dec. 1892.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
To London & Northwestern Com- pany's contribution to start the society - - - - -	500 0 0			500 0 0
To London & Northwestern Com- pany's subscription - - - - -	50,322 1 11	6,887 4 1	6,966 1 7	64,175 7 7
To members' premiums and cards - - - - -	261,733 18 11	30,877 4 4	32,503 18 1	325,115 1 4
To fines deducted from the pay of the staff and contributed by the London & Northwestern Com- pany and various joint commit- tees - - - - -	6,308 11 3	292 6 10	344 2 4	6,945 0 5
To donations - - - - -	10 0			10 0
To interest allowed by London & Northwestern Company on bal- ances in their hands - - - - -	28,840 13 5	5,089 10 10	5,405 18 6	39,336 2 9
Total - - - - -	347,705 15 6	43,146 6 1	45,220 0 6	436,072 2 1
To balance £143,151 16s. 8d.				

Credit.

EXPENDITURES.	Total to 31st Dec. 1890.*	Twelve months ending 31st Dec. 1891.	Twelve months ending 31st Dec. 1892.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
By death allowances (members)	19,002 5 11	2,325 14 0	2,064 6 7	23,392 6 6
By death allowances (members' wives) - - - - -	4,540 0 0	965 0 0	970 0 0	6,475 0 0
By weekly allowances paid to members - - - - -	171,275 11 10	25,487 13 5	25,192 3 10	221,955 9 1
By special grants under Rule 22 in addition to cases in which a weekly payment has been con- tinued - - - - -	717 17 2	20 0 0	34 10 0	772 7 2
By retiring gratuities - - - - -	10,669 4 3	3,101 16 0	4,030 16 0	17,801 16 3
By pensions - - - - -	487 15 4	906 5 10	1,725 18 3	3,119 19 5
By returned half pension premi- ums - - - - -		17 10 4	26 0 10	43 11 2
By stationery and stamps - - - - -	1,495 11 0	155 8 9	155 15 3	1,806 15 0
By salary of secretary and clerks, etc. - - - - -	7,365 17 10	827 12 7	856 0 5	9,049 10 10
By delegates expenses, etc. - - - - -	840 3 6	82 12 8	109 7 8	1,032 3 10
By expenses of sick visiting, etc. - - - - -	2,871 19 10	283 4 11	293 6 7	3,448 11 4
By medical fees - - - - -	2,874 17 7	517 1 0	576 12 8	3,968 11 3
By miscellaneous payments - - - - -	42 15 7		11 8 0	54 3 7
By balance - - - - -	125,521 15 8	8,456 6 7	9,173 14 5	143,151 16 8
Total - - - - -	347,705 15 6	43,146 6 1	45,220 0 6	436,072 2 1

* Including amounts brought forward from London & Northwestern Railway Provident Society and London & Northwestern Railway Pension Fund, upon the amalgamation of these societies on 1st January, 1889.

NOTE.—There are, in addition to the payments shown above, claims and other expenses now in course of payment incurred in December, 1892, amounting to £648 4s. od., and the balance will be reduced to that extent.

Examined and found correct,

H. T. AIKEN, }
THOS. PARKER, } Auditors.

Euston Station, 4th February, 1893.

L. H. VINER,
Secretary of the Society.

C.
COMPARATIVE STATEMENT SHOWING THE PROGRESS OF THE LONDON & NORTH-WESTERN RAILWAY
SUPERANNUATION FUND.

Period	RECEIPTS.			DISBURSEMENTS.										Amount Stand- ing to Credit of Present Members.	Balance.	Amount Transferred from Credit of Super- annuated Members.	Net Profit, being dif- ference between pay- ments by and to Mem- bers.	Less Gross Expenses.
	Subscriptions.		Interest.	Total.	Members Not Superannuated.			Members Superannuated.			Gross Expen- ses.							
	Mem- bers.	Com- pany.			Retired.	In Lieu of Pension.		Annuitants.										
						No.	£	No.	£	No.		£	D'thAll'nce					
1854	£ 3,004	£ 3,004	£94	£6,324	No. 6	£ 47	No. 68	£ 63	No.	£	No.	£	£ 75	£ 5,570	£ 565	£ 6,139	£ 253	
1855	*3,004	3,004	222	6,344	6	47	68	63	..	..	..	..	75	5,570	565	6,139	435
1856	*1,858	4,862	355	4,071	3	33	30	76	..	..	..	..	50	8,045	562	3,019	..
1857	*1,774	1,774	671	10,395	9	80	98	139	..	..	..	..	125	11,290	506	3,536	1,097
1857-8	*6,636	6,636	1,199	14,471	14	102	73	381	..	..	..	..	182	13,587	734	14,695	1,809
1859	*2,406	2,406	804	5,706	11	160	71	520	..	..	..	..	232	18,508	760	17,196	9,562
1860	*9,042	9,042	2,093	20,177	25	342	242	1,003	..	..	..	..	282	22,774	814	19,947	3,315
1861	*11,031	11,031	3,015	25,077	32	480	307	1,541	..	..	..	..	332	27,389	966	22,844	4,033
1862	*13,015	13,015	4,126	30,156	35	595	364	1,846	..	..	..	..	382	31,330	1,104	26,455	4,736
1863	*15,225	15,225	5,452	35,902	44	934	430	2,950	..	..	..	..	442	38,211	1,221	29,262	5,812
1864	*2,406	2,406	1,568	6,380	2	90	130	343	..	..	..	..	512	43,804	1,345	32,250	6,730
1865	*17,631	17,631	7,090	42,282	46	1,030	560	2,599	..	..	..	..	145	50,025	1,609	35,482	8,247
1866	*2,555	2,555	1,799	6,909	12	309	106	847	..	..	..	..	155	71,113	2,039	40,005	9,074
1867	*20,186	20,186	8,819	49,191	58	1,339	666	3,446	..	..	..	..	100	77,562	2,228	45,335	11,600
1868	2,740	2,740	1,980	7,460	9	414	126	615	..	..	..	..	1,007	84,005	2,284	51,377	12,777
1869	*22,926	22,926	10,799	56,651	67	1,753	792	4,061	..	..	..	..	1,107	86,462	2,308	58,250	15,197
1870	*3,168	3,168	2,352	8,688	17	186	246	914	..	..	..	..	155	90,462	2,308	61,731	16,730
1871	*26,094	26,094	13,151	65,339	78	1,939	1,038	4,975	..	..	..	..	155	93,739	2,308	64,437	17,437
1872	*3,718	3,718	2,723	10,159	16	277	221	731	..	..	..	..	155	97,040	2,308	67,738	18,040
1873	*29,812	29,812	15,874	75,498	94	2,216	1,259	5,706	..	..	..	..	155	100,348	2,308	70,040	18,748
1874	*4,149	4,149	3,113	11,411	14	337	273	886	..	..	..	..	155	103,651	2,308	73,349	19,051
1875	*33,961	33,961	18,987	86,909	108	2,553	1,534	6,592	..	..	..	..	155	106,954	2,308	76,646	19,354
1876	*4,381	4,381	3,669	12,391	21	449	272	599	..	..	..	..	155	109,253	2,308	79,945	19,645
1877	*38,342	38,342	22,616	99,300	129	3,002	1,804	7,191	..	..	..	..	155	112,299	2,308	82,991	20,000

*The second line under each year shows the aggregate to that date.

C.
COMPARATIVE STATEMENT SHOWING THE PROGRESS OF THE LONDON & NORTH-WESTERN RAILWAY
SUPERANNUATION FUND.—Continued.

Period	RECEIPTS.				DISBURSEMENTS.													
	Subscriptions.		Total.	Interest.	Members Not Superannuated.				Members Superannuated.			Gross Expenses.	Balance.	Amount Standing to Credit of Present Members.		Amount Transferred from Credit of Superannuated Members.	Net Profit, being difference between payments by and less Gross Expenses	
	Mem- bers.	Com- pany.			Deceased.		Retired.	In Lieu of Pension.		Annuities.				D'th'All'nce				
					No.	£		No.	£	No.	£	No.	£		No.	£	No.	£
1869	4,583	4,583	13,172	4,006	92	398	957	7,999	..	..	4	481	..	11,055	2,407	56,437	1,705	14,973
1870	49,025	42,925	119,472	26,062	151	3,400	2071	7,090	..	..	19	2,019	3	1,546	9,505	63,128	2,089	15,012
1871	47,808	47,808	14,212	4,446	19	540	258	788	2	199	1	723	..	1,000	11,939	109,456	..	18,199
1872	52,218	52,218	126,684	31,668	170	3,940	2,310	8,778	2	122	90	2,742	3	1,646	100	12,301	3,513	21,337
1873	53,026	53,026	15,532	4,866	27	554	306	1,231	..	..	9	1,146	3	1,000	17,461	121,757	4,507	21,337
1874	59,119	59,119	145,016	35,964	197	4,494	9,625	10,009	2	192	29	3,888	6	1,746	100	19,891	5,208	24,122
1875	60,993	60,993	17,599	5,323	21	677	330	2,203	1	193	6	1,495	1	1,000	18,464	134,578	5,208	24,122
1876	67,701	67,701	150,595	41,287	218	5,171	9,955	12,302	3	245	35	5,383	7	1,555	1,555	149,681	..	..
1877	65,800	65,800	178,726	47,686	244	5,717	3,344	13,881	..	..	3	245	38	2,001	2,001	149,681	..	..
1878	7,292	7,292	21,001	6,416	20	490	440	1,553	5	923	4	1,011	6	510	3,662	89,008	5,791	26,084
1879	73,112	73,112	199,727	53,502	264	6,207	3,784	15,433	8	1,168	42	9,112	13	2,511	9,902	96,993	8,830	29,554
1880	78,031	80,031	22,584	6,947	31	715	472	1,504	1	63	11	2,979	2	973	18,116	105,849	9,813	33,472
1881	80,031	80,031	22,311	60,449	295	6,922	4,556	10,938	9	1,231	53	11,391	15	2,981	208	184,922	..	..
1882	89,222	89,222	24,292	7,710	27	753	459	1,954	1	120	7	2,745	4	2,941	201,608	115,572	12,182	26,246
1883	98,063	98,063	24,063	8,373	32	767	475	1,650	3	330	8	3,081	9	231	21,636	138,140	43,351	38,979
1884	107,506	107,506	272,658	76,532	352	8,410	5,131	20,542	13	1,681	68	17,817	21	3,172	221,636	193,752	13,340	38,979
1885	94,443	94,443	300,751	85,739	386	9,015	5,488	22,142	13	1,681	73	20,705	23	2,241	3,396	243,752	45,522	15,899
1886	107,506	107,506	30,274	10,108	28	3,380	340	1,774	4	505	11	4,906	9	3,611	582	19,376	15,899	41,139
1887	117,599	117,599	33,025	95,847	414	12,395	5,848	23,916	17	2,186	84	25,001	32	3,611	3,976	263,128	47,475	149,377
1888	128,095	128,095	34,243	10,921	24	1,303	331	2,340	..	..	17	4,503	9	2,263	4,241	286,600	49,481	47,080
1889	138,112	138,112	35,048	12,832	438	13,758	6,159	26,256	16	2,186	101	29,694	48	3,883	4,241	286,600	49,481	47,080
1890	148,139	148,139	37,070	14,832	30	1,411	322	1,823	2	245	14	5,039	4	4,391	4,505	300,106	51,751	180,280
1891	158,166	158,166	39,070	16,832	468	15,164	6,481	28,079	19	2,431	115	34,663	49	5,175	4,768	340,219	22,736	49,242
1892	168,193	168,193	41,521	18,832	291	16,306	6,772	29,697	21	2,565	122	39,698	53	5,175	4,768	340,219	22,736	49,242

C.
COMPARATIVE STATEMENT SHOWING THE PROGRESS OF THE LONDON & NORTH-WESTERN RAILWAY
SUPERANNUATION FUND. — *Continued.*

Period	RECEIPTS.				DISBURSEMENTS.										Amount Standing to Credit of Present Members.	Amount Transferred from Credit of Superannuated Members.	Net Profit, being difference between payments and to Non-Superannuated Members.	
	Subscriptions.		Interest.	Total.	Members Not Superannuated.				Members Superannuated.				Gross Expenses.	Balance.				
	Mem- bers.	Com- pany.			Deceased.		Retired.		In Lieu of Pension.	Pension.		D'th All'nce						
			£.	£.	£.	£.	No.	£.		No.	£.	No.	£.	£.				No.
1883	12,423	12,359	14,063	38,845	23	1,034	289	1,822	13	5,759	1	28	279	20,853	5347	24,761	51,946	
	*164,121	163,922	146,053	474,076	518	17,340	7661	31,799	21	2,585	135	1,566	5,047	370,072				
1884	12,800	12,805	15,265	41,050	36	1,641	331	2,008	4	550	16	476	404	20,696	5483	213,492	55,143	
	*177,011	176,797	161,318	515,126	554	18,081	7302	33,807	25	3,735	151	51,042	5,451	392,768				
1885	13,217	13,154	16,482	42,853	27	1,855	216	1,602	1	65	10	6,235	10	312	5544	232,823	56,745	
	*190,226	189,917	177,800	557,970	587	20,536	7638	35,490	26	3,200	161	58,177	75	2,354				
1886	13,449	13,385	17,808	44,642	33	1,665	241	1,874	2	180	12	5,018	11	275	5590	248,505	59,496	
	*203,677	203,336	195,608	602,621	614	22,501	7866	37,373	28	3,380	173	64,115	86	2,699				
1887	13,471	13,407	19,115	45,993	32	1,441	228	2,316	1	107	12	6,070	8	216	5584	263,573	62,518	
	*217,148	216,743	214,722	648,614	646	23,441	8007	39,210	29	3,487	185	70,185	94	4,735				
1888	13,695	13,631	20,516	47,842	24	2,813	212	2,511	1	58	13	6,674	8	223	5610	280,798	65,457	
	*230,843	230,374	235,239	696,456	670	26,755	8309	42,250	30	3,545	198	76,859	105	4,088				
1889	13,991	13,928	21,043	49,562	33	5,874	189	1,657	1	78	17	7,035	5	144	5705	295,544	68,376	
	*244,304	244,302	257,182	746,318	703	32,634	8408	43,007	31	3,625	215	83,894	107	5,132				
1890	14,480	14,423	23,376	59,205	29	1,797	216	2,001	4	355	17	7,487	10	140	5895	314,376	72,042	
	*259,320	258,725	280,588	798,603	732	34,431	8714	45,001	35	3,830	232	91,381	117	5,272				
1891	15,088	15,094	24,981	55,093	22	2,356	184	1,797	5	489	14	7,568	5	311	6218	332,549	74,307	
	*274,408	273,749	305,539	851,690	754	36,287	8838	47,615	40	4,200	246	97,079	122	5,583				
1892	15,664	15,601	26,698	57,963	30	2,304	160	1,605	5	489	14	7,568	5	311	6218	332,549	74,307	
	*290,072	289,350	332,237	911,659	790	30,181	9058	49,300	45	5,822	273	108,276	134	5,070				
1893	17,661	16,007	30,128	63,186	32	3,236	249	1,674	1	67	27	9,003	10	374	6547	371,874	79,687	
	*307,133	306,347	361,365	974,845	822	42,417	9307	50,974	46	5,549	300	118,179	144	6,353				

J. PARKHOUSE, Secretary to the Fund.

17th May, 1893.

D.

LONDON & NORTHWESTERN RAILWAY COMPANY'S SUPERANNUATION FUND.

The London & Northwestern Railway superannuation fund has now been in existence forty years; it is the largest and oldest Railway superannuation fund in the United Kingdom.

The following are its salient features: Every *salaried* officer on entering the service under 25 years of age is compelled to join, paying $2\frac{1}{2}$ per cent on his salary monthly, the company simultaneously contributing a like sum. They are also the trustees and bankers of the fund and as such credit it with interest at the rate of 4 per cent per annum. *Pension can be obtained* by any member after attaining age 60 as per scale on page 14 of Deed Poll, and any one who has been a contributor for not less than 10 years who by reason of failing health is incapacitated from performing his duties, can claim his pension as per scale prior to attaining 60 years of age.

The committee have power on the application of a superannuated member to commute his pension, but they cannot under any circumstances give him more than 5 years' purchase.

In the event of any member *dying before* being pensioned, his representatives receive a sum equal to a half year's average salary, but if that amount be less than the total of his own and the company's contributions on his behalf, then the total amount of such united contributions is paid. Should a superannuated member die before he has received as pension the amount he and the company contributed to the fund, his representatives receive the difference between such total contributions and the pension paid.

Members *resigning* the service of their own accord are repaid one-half of their own contributions. Members dismissed by the company are repaid the whole of their own contributions, and members dismissed for fraud forfeit all, but at the discretion of the committee.

J. PARKHOUSE, Secretary to the Fund.

Euston Station, 17th May, 1893.

GENERAL REMARKS.

When the London & Northwestern Fund was started in 1853 any one was allowed to join during the first year, irrespective of age, and numbers availed themselves of the offer, so that of the first 50 who retired through old age and took their pension, only one joined the fund under 40 years of age, and as the actuaries in examining the fund 9 years ago for the first time informed us that all persons entering after age 25 were a loss, it will at once be seen how the fund was handicapped by many who joined during the first year. Of the present number of contributing members (6,547) about 1,000 commenced to contribute at varying ages between 25 and 40, so that it will be some years yet before all these unprofitable members are worked off.

I mention these points, because large numbers of the members seeing the balance in hand is increasing so rapidly year by year think that the benefits might be very considerably improved; it is quite possible they might, but the increase in the balance in hand is no proof. The number of pensioners now on the fund is 156, but a statement was compiled showing the numbers contributing in 1883 in the various ages, and after deducting the numbers that will fall out through secessions (*i.e.*, resignation, dismissal and death) it was found that in the year 1917 we should have 392 pensioners on the fund if they deferred taking their pensions to age 65,* but if they elected to take their pensions at 60 as they might, then we should have 591 on the fund; this is apart from those coming on the fund through incapacity, and up to now almost as many have been pensioned through incapacity as old age. We have also, since the above forecast as to pensioners was made, increased our contributing members by over 1,200, all of whom are very young. These figures are referred to show that we have not yet reached anything like our maximum liability as some suppose.

The fund is now on the eve of its next quinquennial valuation by the actuaries.

I enclose a comparative statement of receipts and disbursements, showing the working of the fund during the whole period of its existence, with a copy of the Deed Poll (rules), last balance sheet and last two actuaries' reports, and also copies of the last two reports on the fund by the Members' Committee setting forth their views on the subject.

Euston Station, 17th May, 1893.

J. PARKHOUSE, Secretary to the Fund.

E.

GRAND TRUNK RAILWAY OF CANADA SUPERANNUATION AND PROVIDENT FUND ASSOCIATION.

MONTREAL, JULY 8, 1889.

To the Members of the Association:

The Committee of Management have received the report of the actuaries, Messrs. Frederick Hendriks and Ralph P. Hardy, of London, England, of the results of their investigation into the working of the fund in the quinquennium ending 31st December, 1886, and of their valuation of the assets and liabilities of the fund at that date. The report states that the statistical record of the new entries has been properly kept up by the officers of the fund, and that the actuaries have tabulated therefrom the experience of the quinquennium for each age passed through by the members of the fund, and they have compared the results with those deducted for the period 1876-81, and enumerated in their previous report of 16th June, 1884. Taken as a whole, the experiences of the last five years practically coincide with that of the previous period.

On the 31st December, 1886, the fund consisted of 559 members, 389 of whom joined in the five years to that date, leaving only 170 members remaining of the 424 on the books at 31st December, 1881.

This ratio of retirement corresponds with the previous experience, but it cannot be determined

* Age 64 is the average at which such members take their pensions.

what may be the secessions for the future. Having given these facts and the construction they may possibly bear a very full consideration, and after weighing all the circumstances, Messrs. Hendriks and Hardy have estimated the financial condition of the fund, the rate of interest on investments having declined from six per cent (which rate they used at the last valuation), and taking five per cent. as the more probable net rate, over the immediate future, if the pensions emerge on retirement at age 58 there is a nominal surplus.

The practical conclusion, in their judgment, is that, for all reasonable purposes, it may fairly be taken that the fund is solvent. At present there is a small margin existing in the surplus beyond the assumed five per cent rate of interest, which may be set against the expenses of administration. They are decidedly of opinion that there should be no increase in the benefits or reduction of the contributions.

While the above results are such as, in their opinion, may be safely accepted, yet if a fall takes place in the rate of secession (retirement from the service) whereby the liabilities are not relieved to the extent provided for by the present calculations, it may hereafter become necessary to strengthen future valuation estimates, and so make an adjustment upon the existing scale of benefits.

I may state that at the present time investments are being made for the fund at $5\frac{1}{2}$ per cent per annum, the entire amount invested yields 5.47 per cent per annum. All the investments are perfectly good, the interest is regularly paid, and no loss of any kind has been sustained in the fifteen years of the existence of the fund.

T. B. HAWSON, *Secretary*.

APPLIANCES FOR THE SAFETY OF RAILWAY EMPLOYÉS.

HON. L. S. COFFIN, FORT DODGE, IOWA.

Doubtless no paper read before this railway congress will have to deal with a question of greater vital interest, both to the great traveling public and to the now vast army of railroad employés, than this of safety appliances connected with handling cars and running trains. Great and absolutely beyond the grasp of the mind to properly conceive of the value to us as a nation as are the advantages accruing to us from railway transportation of what we term freight, still all this weighs as of little worth when life is in the other scale of the balance. This trite saying expresses it: "What is all the world to a man when his wife is a widow?" What matters it if I *can* take my cars of stock to a great central market from my farm 500 miles away in twenty-four hours, if after disposing of that stock at good prices, on my homeward journey with the proceeds in my pocket, I lose my life in a wreck caused by lack of proper safety appliances?

While we want quick transportation for our stuff we want safe as well as rapid transit for ourselves *more*. But where, in the history of the marvelous development of railroad facilities, shall we begin the discussion of safety appliances?

A careful study of the exhibits in yonder transportation building will not only surprise but serve to correct us in the matter of dates as to the original idea and use of rails for roadways for heavy traffic. We are accustomed to look back to 1830, when the Manchester & Liverpool railway was opened, as the birthday of railroads. While it may be true that about this date commenced the application of steam for propelling carriages upon "tram" or railways, we must go back yet 200 years further at least, to find the first *railway* used in England. It may help our memory some to associate the first recorded use of rails laid from the collieries at Newcastle to the shipping docks with the landing of the Pilgrim fathers upon the shores of the new world.

These rails were made of plank six feet long, four inches thick. The wooden rails were in course of time worn and rendered unsafe, and to remedy this plates of iron were spiked upon them and the men who did this work soon become known as "plate layers," a name today used in some parts of England to denote the men who lay the safer thirty feet steel rail, of 86 to 90 lbs. to the yard—a striking contrast truly between the kind of rails.

These iron plated rails of course caused rapid wear to the old wooden wheels of the carts, and for safety, in 1750, cast iron wheels were introduced. In 1765, the iron plated rails gave place to cast rails three feet long, four inches wide, with a flange on the inner side to guide the wheels.

In 1789, engineer William Jessop, in building a railroad from Loughborough to Leicestershire, made a wonderful forward step in the safety line by abandoning the flanged rail and bringing in the flanged wheel. Here, let us note, was the advent of one of the great appliances upon which depends the safety of all railroad travel and traffic of the present hour, viz.: the flanged wheel. Who of us ever thinks, when rounding a sharp curve in a palace car at fifty miles an hour, that William Jessop, an almost forgotten engineer and mechanic of England 100 years ago invented and brought out the very idea that today is the great practical safety appliance that holds our flying trains in safety to the rail?

It might be interesting and instructive to follow up step by step the changes and progress made both in wheel and rail as well as in the substructure; but over there in the White City this can all be taken in by object lessons. How natural, too, it was to think that the firmer and more solid the foundation upon which the rails were laid the safer it would be, and at what immense cost were stone pillars and sleepers put down on which to lay the rails. How many thousands of dollars it has cost to learn that "elasticity" in the substructure is an essential safety appliance. Not only in old England but in our New England, early pioneers in railroad building had to pay dear to learn this important lesson.

But leaving these days of small beginnings, which however are not to be despised, we come down or rather up to the wondrous and magnificent achievements of the present. It is utterly useless to attempt to find qualifying words to suitably express the status of railroad transportation as it confronts us in this A.D. 1893, and as we see it in epitome in yonder building. To say that today the safest possible way of locomotion is by the steam railroad car is but simply stating an absolute fact. Here is seen the crowning triumph of inventive talent, mechanical ability and skill such as the world has never before witnessed. A passenger train of cars hurled through space at the enormous velocity of 65 to 70 miles an hour with as much or more safety to each of its 200 to 500 passengers as if riding behind his own old family horse drawing the stout family wagon, is the marvel of this present hour. Somebody, somewhere, has done a great deal of hard thinking, and somebody has done a great deal of honest and faithful experimenting and reduced to practical application the results of this hard thinking.

All of us who take part here can well remember the nervous fear

we had of telescoping when riding on trains prior to the advent of the Miller hook and platform. Some of us may carry to our graves the scars received from the jerks and shocks common to all passenger trains coupled with the old style link and pin and controlled or attempted to be controlled by hand brakes. In the blaze and glory of the achievements of the present in railway travel it is difficult for us to realize that it was so few years back that the public was well pleased with what are now to us unsafe and rude appliances on trains.

The advancement in safety appliances on passenger trains is something wonderful for the rapid succession of improvements. To the memory of those who have participated in and have been in a sense a part of it, it is nearly like that which presents itself to the eye in the transportation building on the grounds in Jackson park. We are looking for the moment on the crude, the rough, the uncomfortable, the slow and tedious, and in many respects unsafe methods of travel of the near past. We turn and in the next minute we are revelling in all the luxurious belongings of the time, distance and danger annihilating, vestibule palace train of the hour now, and standing at its head this marvel of our century the present improved locomotive "No. 999" and its equal fellows.

But what one thing of all that so greatly interests every spectator in these magnificent outfits for rapid and safe transit above all others gives such unparalleled safety to that ponderous engine and its modern parlors and sleeping apartments on wheels. Next in importance for safety to the flange on the wheel which holds that wheel to the track is the necessity of some mighty power to grasp that wheel in a vice-like grip to stop its roll when its continued motion would carry the train to danger. The common hand brake was found to be on this greatly increased weight of improved engines and cars utterly incompetent and unsafe. Various forms of power brakes were brought out by inventors; chain, buffer, straight air vacuum and other forms of brakes were tried, and while some of them were a great advance over the hand brakes yet the great want was not met until the advent of the Westinghouse automatic air brake. The myriads of humanity that now travel owe a debt to George R. Westinghouse Jr. they can never pay. It matters not how many good and great inventors may travel in roads now made plain, to George Westinghouse is due the honor of going ahead and blazing the trees that enables lesser daring ones to follow.

It is not the design of this paper to advertise or duly extol any one method or man; simple facts and strict justice are the ends sought. The speaker perhaps more than any other man outside of railroad circles and the inventors and makers of power brakes can speak with more confident intelligence upon this point and he hopes to be able to do this without offensive egotism.

It was his privilege as a state railroad commissioner of Iowa to be honored with an invitation from the committee of experts from the Master Car Builders association to participate in the noted brake tests at Burlington on the C. B. & Q. railroad in charge of this committee in 1886 and 1887. While the object sought in these tests was to find some practical power brake suitable for freight train service, the want of which was beginning to be felt as imperative and which will be discussed farther on, yet as a result of those remarkable tests under the

faithful and conscientious work of that committee of experts, of which G. W. Rhodes, master of motive power of the Burlington railroad, was chairman, we have now the quick acting brake brought out in the fall of 1887 by Mr. Westinghouse which gives so much greater safety to every passenger by rail. As already intimated it matters not how many firms may now be making a quick acting brake, the name of George Westinghouse should and will be handed down by historians of railroad safety appliances as the one man whose wonderful inventive ability has done more to make travel by steam railroad almost absolutely safe than any other man in the world.

Right here it may be in place to analyze briefly the "why" these amazingly rapid strides in all that not only pertains to safety but comfort of travel on our railroad trains; and also to ask the question, is there need of any compulsory legislation to enhance still more the safety of travel on passenger trains. I am very frank to say that I have always felt that this whole matter would take care of itself. There never has been and in my judgment there never will be any urgent need of legislation upon this particular subject, viz.: Safety to passengers. Why? Simply because the great law of competition will take care of this better than any legislation, state or national.

Let one road abolish the stove as a means of heating its cars and publish that fact, and its competitors and parallel neighbors must do so too, or see its customers going to the safer heated cars. The same is also true of lighting methods. Let one road advertise that "its cars are lighted with gas and absolutely safe," while its competitors use other and less safe means, and the fear of being in a burning wreck set on fire by unsafe lamps will drive to the cars with the safer light.

There never has, I repeat, there never will be in my judgment any great necessity for laws requiring safety appliances on passenger cars and trains. So great is the strife to secure passenger traffic as a mere advertising method that it is cheaper by all odds to use at all times the best known practical safety appliances. And with what a miracle of superb excellences and luxurious comfort and with all known appliances that will add one iota of greater safety are our passenger cars now perfected! The enterprise of all our roads of any considerable importance shown in this direction is worthy of all praise. No general manager or president has to beg long for necessary funds from the board of directors for this purpose. Today America stands far ahead of all the rest of the world in her appointments for comfortable, luxurious, rapid, cheap and safe passenger traffic; and competition will take good care that neither of these conditions will ever be lowered.

If ever the aid of the law-making power should be invoked to regulate any thing in regard to passenger traffic we need not be surprised to see it used to restrict speed and competition. We may yet find it necessary to control competition by law as a matter of safety appliances, both to distant and innocent stockholders of railroad property and also as a means of safety to the traveling public. There is a growing mania for fast trains as an advertising scheme, yet who of the wisest in railroad lore is yet ready to say where the limits of speed and the greatest reasonable safety meet? All along the history of railroading the impossible of today has been the practical of the tomorrow.

But I am aware that I was honored with a request to prepare a

paper upon safety appliances to be read here because of my supposed interest in this matter as connected with employés in the freight train service.

A wide field opens out before us as we enter upon the discussion of this part of the subject. We are to meet with facts here that should be dealt with frankly, candidly and yet in plain unvarnished truth and justice. It is reported that there are now something like 800,000 to 1,000,000 men and women employed by the railways of this nation; of these say 250,000 men are employed in train and yard service. The reports of the state railroad commissioners, in the states where the law creates such officers, and the reports of the interstate commerce commission, show that out of this 250,000 not less than 25,000 meet the casualties yearly—many fatal; more making them cripples for life, and still more suffering painful injuries which allow of partial recovery so that the victim returns again to work. Neither of these sources give us *all* the exact facts. Some states do not have any state commission Board, and purely state roads are under no law by which they are required to report to the interstate commerce commission. Hence we can readily see we do not get from these sources reports of all casualties to employés. The National Association of Railway Surgeons at their annual convention last year at Old Point Comfort in Virginia, made, I am told, the astounding report that the preceding year furnished over 31,000 subjects for their investigation and skillful aid. This is simply horrible and challenges credence, for it means that over one in every eight employés in handling cars and trains in this country must be either killed or more or less maimed every twelve months.

As a rule railway surgeons never treat all that are badly hurt, thousands of others get slight injuries that never come to the surgeon. There is at present no way by which we can get reports that will give all, but in the name of humanity is not 31,000 enough for one short year? Who can realize all that that means? Something like 3,000 are killed outright. These, too, are all strong, able-bodied men, right in the flush of manhood. From my own investigations, which need not here be detailed, I can with great confidence say that at the very least fully 50 per cent of this large number are killed or injured from two causes alone, viz.: the continued use of old style hand couplers, and the hand brake.

Before this audience I need not dwell on the terrible facts here brought out, I will merely ask you to estimate for yourselves, this: If last year the old link and pin draw bar, and the hand brake called for the lives, limbs or untold sufferings of 15,000 of these hardy and faithful railroad employés, how many lives, how many limbs and how much pain and anguish have been offered up on this altar of—what shall I call it?—since the first freight train rolled over the rails in America? None of us can answer this. Can any one of us answer why this has been suffered to go on, year after year, and this horrible sacrifice of life has been kept up? Why has the crowning achievement of this century, this unparalleled perfection of railroad transportation, been bought at so dear a price? Why has it been allowed that every mile of rail laid in America has been bathed in the blood of the faithful employé?

Now dare I trust myself to go on and in this presence say just how this matter stands in my mind and I, an average of the common lay-

man, show how it appears to us the common people? Will my motive be understood and appreciated? My only desire in presenting this paper is to do some good, to help on and accelerate the grand work now being done by all the more progressive roads in fitting their cars with automatic couplers and power brakes. Please accept what I say in the spirit in which I give it. This congress is an epoch in the railroad history of America; papers read here are not merely for today.

The terrible record confronts us. Somewhere responsibility rests. Are these employ  s to be blamed for being killed, crippled and injured? If not, who is? Is any one? None of us are willing to say no to this. Corporate bodies scatter and so thin out responsibility that *individual* responsibility becomes nearly lost; still there must be somewhere a fault and responsibility. Will it do to lay it to a lack of inventive and mechanical skill? I think not. These have been active and effective to make passenger travel almost miraculously safe. Why? Is it not because in addition to competition the courts have held the roads responsible for the safety of the passengers? You all see at once I mean a great deal by this.

Has the making of one ruling for the passenger and another for the employ   been a safety appliance for the latter? I am not here to give a tirade against the courts. I honor learning, wisdom and ability; but will it be out of place for me to modestly suggest that today, under the greatly changed condition of affairs brought in with the advent of the locomotive, the rulings of the court founded on the relations of master to servant, of servant to fellow servant and co-laborer two hundred years ago are scarcely sufficient to meet the changed conditions of today?

Pardon me a moment while I attempt to analyze for illustration. Here is an intended passenger. It is not absolutely necessary that he should take the train. He knows that accidents do happen to trains. He knows that the dispatcher in yonder office may make a mistake and send his train crashing into another. He knows all this, but still he takes the train, but does the court hold him as contributing to the results of the collision that costs him his life? Does it hold that he assumed the risk and therefore cannot recover? On the other hand here is a green, simple boy infatuated with a desire to be a train man. You and I and all the great public and the court judges even, want him, green as he is, to become a railroad employ   because somebody must run the train. We want to ride, we want to send and receive our goods. It is absolutely necessary that this boy, unsophisticated and rustic as he is, having hardly the slightest idea of what railroading is, knowing nothing really of its perils but desiring to follow this as his life work shall go, and in so doing be a great benefit to us, to stockholders and to all. He goes, and in attempting to couple the first car perhaps is killed. Parents seek to recover something, but the judge whose library was in the car that killed the boy decides that as the boy was supposed to know all the dangers of railroading he assumed the risks and by trying to do what we all wanted him to do; what the judge wanted him to do so he could get his package of law books; doing what the poor boy was in a sense compelled to do to earn his bread; doing his part in carrying on that which is now become a necessity of our civilization, because he did this he contributed by his own negligence to his death and therefore cannot recover.

What, we common people ask, are our laws and our courts for? Are they for the strong or for the weak? But let me be fully understood here. I grant I am in earnest and using plain English. Is it that I would mulct the roads in large sums to enrich the employé or his family. No! No! Not at all! That is not it at all. I am a friend to the railroads. I have nothing in common with this senseless howl of the demagogues against corporations and roads. While a life-long farmer I realize that the prosperity of the roads is the result of my prosperity. The best interest of the roads and the highest prosperity of the communities they serve are one and the same. There is a community of interests so patent that the blind should see it.

It is because I am a friend to the roads that I deal in plain words. Let the courts hold the roads to as rigid responsibility for the life of the employé as for the passenger and it would be the most effectual safety appliance possible. It would then be only a question of short time when every car would be equipped with automatic couplers and every train with power brakes. Then this dark, foul blot on this otherwise grandest achievement of this nineteenth century would be washed away.

Take another case.

- The company for some reason good to itself employs a dispatcher. He proves incompetent; he gets drunk; in his maudlin stupidity he sends two trains together and lives of train men are sacrificed and others are crippled for life. "Can't recover because it was caused by negligence of a co-employé." Did the dead men have any voice in employing the incompetent dispatcher?

In the same collision passengers are injured. The courts allow them heavy damages, but the faithful engineer who, when he saw the crash inevitable, still stood by his throttle and lever in faithful, heroic but vain attempts because of lack of power brakes to save his train and died in the effort, leaves a beggared wife who cannot recover, so says the court; but the wife of the passenger killed gets ten thousand dollars at the hand of the same judge.

Such rulings as these of our courts do not hasten the putting of proper safety appliances on our freight trains, but they turn our passenger trains into museums of safety appliances.

But neither the corporations nor the courts must shoulder all the responsibility, and this paper would fail of its purpose if it stopped here.

The great general public who are reaping the inestimable advantage of rail transportation have not only stood silently by "holding the clothes" of those most active in the immediate responsibility but have virtually urged on this inhuman work. How? By this extreme and unreasoning prejudice against railroads, resulting in laws that cripple them as to resources so that it becomes extremely difficult to devise ways and means by which safety appliances can be secured to equip the freight cars of this nation with automatic couplers and power brakes which would cost not less than \$75,000,000.

The public should cease its clamor for cheap rates and for laws regulating rates until the roads had first made railway work as safe as possible for their men. Allow the roads to charge reasonable rates and then hold them to a strict responsibility for the lives and persons of their employés.

It may be asked by some why this kind of talk now that a national

law is in power requiring safety appliances on freight cars. Because it is one thing to have a law and another thing to have a public sentiment to back up and execute that law. But this paper would be far from accomplishing its purpose if it did not, to the best of its ability, attempt to give praise to whom vast amount of praise is due. The world will never know how much we are indebted for the wonderful immunity we have from accidents in railway travel and traffic to the untiring and most intelligent and faithful work of the technical departments of our railroad companies.

It has been the speaker's high privilege for the last six or eight years to be allowed to meet many of these officials in their national convention, more especially with what are known as the National Master Car Builders and Master Mechanics associations. These associations represent from 90 to 95 per cent. of all cars of the continent. The members of these associations are men of thoroughly trained minds and of great practical knowledge. To the annual conventions of these associations members come from nearly every road in the states and Canada. At these conventions everything that goes to the make-up of the best possible locomotive, passenger and freight car is discussed from a practical standpoint.

It is with these men where the groundwork foundation of the wonderful safety for railroad travel is laid. Aside from the annual meetings each considerable locality has its local club of these men where they meet either once a month or once in two weeks, when able papers are read or discussed relative to all these matters of car building and the greatest possible safety combined with consistent economy. These men blow no trumpets, they do no posing before the public, but quietly in the great railroad shops and in the laboratories of the great railroad systems they are working out the problems of economical and safe railroad transportation.

These men have evolved uniform standards for almost everything that enters into the make-up of cars. Probably no one thing in all these investigations, tests and experiments has received such close, faithful and impartial study and long, earnest interchange of views as this of a uniform safe coupler and a power brake for freight cars.

After years of patient work the committee on automatic couplers made their final report to the national convention held in Minneapolis in June, 1887. The committee reported in favor of the vertical plane hook type as a standard form of coupler, and the convention by a two-thirds vote adopted this report, which was afterwards confirmed by a letter ballot of an over two-thirds vote of all the roads represented in that association, which was not less than 90 per cent. of all the roads in the nation. This form of car coupler or drawbar has grown more and more in favor with the roads until now the great American Railway association, including in its membership about 75 per cent. of all miles of railroad of the nation, is practically a unit in favor of this form of drawbar as the standard automatic coupler for all the freight cars of America.

One of the defects of the recent congressional legislature upon this subject of safety appliances is that it does not recognize and legalize this meritorious work of these eminently practical mechanics, the master car builders, in so many words. But so many of the leading roads

having adopted this form of coupler as "standard" the strong though unwritten law of interchange among railways will have the same result as though legalized by congress.

It is intensely gratifying to note the grand work now being done by the leading roads in equipping their cars with the M. C. B. type of safety couplers. It is unfortunate that there are so many varieties of this type being put onto cars. If our coupler makers could only pool their issues and have but absolutely one make of this type, as was nearly the case for years with the Miller hook and platform on passenger cars, so that every car would be fitted up with this one make and the unlocking device the same on every car it would then seem that car coupling work would be rendered as safe as we could reasonably ask for it to be. Would it not be wise to seek to amend the present law to this effect?

Indeed it might well be remarked here that had all the roads evinced such enterprise in this matter of safety couplers and brakes as certain progressive roads that could be mentioned there would have been no need of the law. The law was and is a necessity to spur on the lag-gard roads.

POWER BRAKES ON FREIGHT CARS.

Fearful and dangerous as the work of car coupling is and almost incredible the long lists of fatalities and injuries arising therefrom, still the actual *fatalities* are greater in number from the continued use of the old hand brake on freight cars than from any other one cause.

When one comes to really get right down to a contemplation of the actual facts of the exposure and risk incurred by a freight brakeman no man who has left in him one spark of real humane manhood can for a moment be reconciled to the conditions that confront him. The future historian of railroading in America will find it hard to make posterity believe that human beings were required to ride the decks of our freight cars facing the biting blasts of winter, with the mercury down to 20 to 30 below zero; compelled to run from top of one car to another; the black smoke and steam from the engine blinding him as it rolls back over the train in dense volumes so that he cannot see the deadly chasm between the ends of the rolling, swinging, jerking cars covered with sleet and snow and rushing against a winter gale of 30 miles an hour at the rate of 25 miles — made I say to ride these cars under such conditions which are every day occurrences in our winter months, and what for? Why to interpose his puny strength between that ponderous train and its momentum and a danger ahead, sure to be met unless he can by the old handbrake stop the train which on such a night and down that grade is about like the fabulous fly upon the bull's horn.

Now is there a man of us here today that would do the work of a brakeman one winter's night for all the railroads on the continent? No not one. Still tens of thousands of our fellow men, bone of our bone, flesh of our flesh, are doing just this kind of work year in and year out, right here in christian America. And when in one of these black, cold, stormy nights, with the wind howling a hurricane, decks covered with ice, his glimmer of a lantern blown out, yet true to his trust he pushes on to reach the brakes, he slips and drops between the cars and is ground into an unrecognizable mass under cold, cruel iron, his mother

when seeking some recompense for the idol of her heart and her only support is told by him who is appointed to hold the scales of exact justice, "Yon can't recover;" "Your son assumed all the hazards of the work."

It does seem to a common man that such ruling is not a safety appliance when at the same time it is a matter of common intelligence that down that same grade on just such a night a train of 50 cars can be hurled at the rate of 40 miles an hour and in case of necessity can be brought to a standstill by the modern, quick acting power brake inside of 500 feet, and not a trainman need to leave the caboose, all being done by a simple turn of the wrist of the engineer in his cab. Under just such conditions as described thousands of our strong young men have met their tragic death and still the work goes on; but now thank God in a decreasing rate.

It may very pertinently be asked why, if power brakes are practical for freight cars, do not managers put them on? Managers do not have always the say about such things. Brakes and couplers cost money. Money of a railway company cannot be used in large quantities for such purposes, except as appropriated by vote of directors, arfy more than public funds can be used to build postoffices only as appropriated by Congress. These boards of directors have stockholders behind them, of these many of them are absentees, and they not fully understanding the necessity, will not readily listen to calls for money for improvements.

While the operating departments now recognize the fact that power brakes and automatic couplers are not only good and necessary for safety to trainmen, but are actually economic appliances, while they know that from 12 to 20 per cent of the cars of a train fitted up with train brakes and so located as to be used, enable the engineer to make much better time and give him a more complete control of his train than the assistance of any three brakemen could possibly give, yet these men are powerless unless the money is regularly appropriated for this purpose. The object of the present national law is to reinforce managers and other officials when they ask for means to put on these safety appliances. Now they can say, "thus saith the law," and the money must come.

In the face of facts now so patent, it does seem that the rulings of the courts should be more or less moulded to meet the present conditions.

Automatic standard couplers have been adopted by the railroads themselves, on their own motion by practically a unanimous letter ballot vote after ninety days consideration upon the action of their own officials, viz.: the master car builders. The standard height of draw bars has also been in the same way established. It is also now established as a conceded fact that the air brake is practically applicable to freight train service, whereby the engineer has far better control of his train than can be given him by a half a dozen brakemen, hence relieving the latter of the great risk and exposure formerly met.

Aside from these safety appliances there are others that could be profitably mentioned, but I have already exceeded my time and exhausted your patience.

The cultivating of good will between officials and men, the attempt

at profit sharing so commendably undertaken by the Illinois Central company, and above all this wonderful movement among the men themselves in the interest of total abstinence from all that intoxicates, whether when on duty or off, as witnessed by the remarkable fact that in one short year from its inception nearly 100,000 practical railroad men have put on the white R. R T. A. button of total abstinence from all that befuddles the brain, is one of the grandest movements on the road of safety appliances ever undertaken by railroad men, and when we can see all the officials also wearing this white button in good faith for the encouragement and help for the men we may then say the day is dawning when the record of railroad accidents shall be few and far between.

One word more and I am done.

Overwork, not allowed proper time for rest, is certainly not a safety appliance. Crank as I may be called because of my views and words on safety appliances, yet I will venture the assertion that when men have regular hours of rest, have their one day of rest in seven, we shall find that they rise up from mere machine-like things, with a "don't care a damn" way of acting, to that of a thinking, reasonable man with an interest in his work and regard for the rights of property. Sunday rest as far as possible and practical in the exigencies of the movement of the commerce of a great nation, will in my judgment be a very important factor of safety appliances.

RAILWAY EMPLOYÉS: WHAT SHALL BE DONE FOR THEIR PROTECTION AND IMPROVEMENT.

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It is a common saying, and probably a true one, that history repeats itself. Nations rise and fall; the highest degree of civilization has been followed by ruin and decay. Looking backward over the centuries which have passed, and judging from the various conditions and qualities of men it would seem that we were indeed fortunate in being permitted to live in this the nineteenth century, and to enjoy and participate in the celebration of this great anniversary of the creation and inception of the grandest government which in our opinion ever existed upon this earth.

One of the most important factors in modern civilization has been improved transportation for the people and products and rapid means of communication between distant points, as the result of development and improvement in the use of steam and electricity. The railways of the world have made a complete transformation, have changed all the conditions of trade, all political combinations between states or empires, and will undoubtedly continue during all time to be one of the most important factors in the progress and growth of all countries.

In the development of these enterprises there has grown up an army of skilled and efficient people who have probably been more perfectly educated and drilled in their duties than any other class of men, and who, by reason of the requirements they are called upon to fulfill and the privileges they enjoy, have in turn become better acquainted with all the conditions and circumstances of life than they could through any other channel or by any system of education. The rapid development of these undertakings and the many schemers who have launched such enterprises merely for the profit in construction and the marketing of securities, have in too many cases made the operation of such properties obnoxious, unwise and uncomfortable. Where intelligent men have created railway lines with legitimate prospects, as a rule the employes have found permanent homes and pleasant situations. The discipline and requirements on such lines are usually more strict than on wild-cat roads, but the feeling of security, permanence and pride which naturally comes from serving such a company generally make the positions more agreeable.

The question of the hour seems to be—What shall be done to create and maintain the best possible relation between employer and employe? What course shall be pursued to establish that confidence which should and must exist if the best results are to be obtained; what course will produce in the highest degree the lasting good of the employes in each and every department where they may have cast their lot, and where in all probability they must expect to serve during all their lives. In the early history of railway traffic, when all things were new and crude, strong friendships and personal attractions bound together the officers and employes in their enterprise like the members of a family, each having an absolute independence and still a common interest in the general result. In later years the spirit of combination seems to have entered all walks of life. Trusts have absorbed and monopolized all the leading lines of trade, and combinations of labor in every department have grown up as an offset, with the same view, *i. e.*, self protection. The danger to the commercial world of such combinations has already resulted in very arbitrary, stringent laws, which will undoubtedly be enforced, preventing such monopolies from existing. The danger to the laboring world, while not exactly in the same line, is no less real and in need of correction, and the intelligent citizen should do what he can at all times to perpetuate and promulgate the principles of liberty under which our great country has grown up and developed. True manhood can never be maintained or fully developed unless the personal independence and individuality of each man are clearly sustained. Personal pride, respect for one's self, for family, friends, or those under whose directions the person is employed, is as necessary for full development and growth of character as is his daily food for the development of his physical body. This, however, must be considered in connection with discipline and daily results of allotted tasks. No enterprise can succeed without a central head whose direct management shall be practically arbitrary and final. When combinations of employes assume to dictate and regulate the operations of companies or employers, as they have in many instances in the past, the result is demoralization and destruction of independence. The individuality of each member is lost, and he becomes nothing more than a number, like a car or a locomotive, and unlike them is not

gauged according to his capacity or power for performing service. He puts himself upon a plane of equality with every other individual in such combination, he loses all incentive for improvement or advancement in his particular line, and really ceases to have an individual existence. As between employer and employé intelligent coöperation, a mutual interest in the success of the business or enterprise, an honest recognition of individual effort and ability, all indicate civilization; while disregard of law, order and discipline, or reliance upon brute force, boycotts and strikes, are relics of barbarism. Ballots not bullets, should be the motto in this "Land of the brave and home of the free."

All thinking men look with contempt upon the voter who blindly follows the party lash and casts his ballot for dishonor or disgrace. Personal independence does not prohibit mutual aid and organized protection, but does induce healthy self government control and development. Unity of principle need not destroy individuality. The remedy for such unfortunate conditions is undoubtedly much like that which is required in commercial circles. The great desideratum at the present day is confidence—confidence in the purposes and practices of both parties; disposition to concede, to consult, to coöperate. All products of the earth are subject to fluctuations in value. Different parties successively secure and control and increase or decrease such values as the case may be. Combinations of labor as against capital have heretofore, and will undoubtedly in the future from time to time, temporarily regulate the value of labor as well as other commodities. The ability of employers to maintain and at all times meet the demands of labor is very uncertain and will in all probability in the future be inadequate. The farmer who produces grain and other products of the soil which result in increased value to the communities of the world, must accept for these products whatever the market price affords, and never in the history of the country have they really been so cheap as at the present time; while on the other hand, the compensation for labor has never been so high, and naturally the great army of railway employés, if they could but thoroughly realize the situation, so far as salary is concerned, are better situated than any other laboring class of people on the globe.

Next to confidence comes contentment, and much may be done by each individual in self education in reaching this most important and desirable condition. We are all creatures of habit, and such habits grow or develop very rapidly in the direction in which we lead them.

Improved conditions in life are largely the result of personal, individual effort; each person's life is largely what its possessor makes it. Systematic cultivation of the abilities, mental as well as physical, developing of the mind, opening up of dormant resources and qualifications, will all tend to improve our railway people as well as those pursuing other vocations. Interest should also be maintained in social and political matters; every person has an obligation to his neighbor, to his state, and to his common country. This responsibility cannot be shifted, and should not be neglected. Every person owes a duty to society and the community in which he lives, and should do his full share to promote their welfare. The exercise of the franchise and taking part and interest in the government under which we live also tend to produce better citizens and consequently a better state of affairs for all laboring

men. They are enabled to improve their minds and conditions by coming in contact with all other classes of labor as well as with experienced men from other walks of life, and by such contact acquiring finish and culture which may be had in no other way. Such development and education must inevitably be followed by self protection and improvement—protection against all evils resulting from bad habits, bad associates, ~~or~~ evil disposed superiors—and rapid advancement in all that makes life desirable. The introduction of new and more effective machinery, improved state of the permanent way, and all additional facilities which experience will bring, aided by intelligent coöperation of the rank and file in the railway service, must be followed by greater development and improvement in the condition of railway employes during the next generation than we have had in the past. By the ordinary exercise of our will power, our reasoning intelligence, we may educate ourselves to see the bright side of every cloud, to consider the many things we each day or year are permitted to enjoy, to realize how much better our lot is than that of many of our neighbors. And above all, let us at this time consider the glorious liberty of this our great and beloved country; let us feel a national pride in this great Columbian Exposition; let us endeavor by some word, or act or deed to contribute to its success and prosperity; believing, anticipating that no such aggregation of beauty, of all the arts, of all the products of the world, has or ever will again during the present generation, be gathered in one place. May we all feel and realize that this is a great school for the education of all the nations of the earth.

PROTECTION AND IMPROVEMENT OF RAILWAY EMPLOYÉS.

SAMUEL R. BARR, SUPERINTENDENT RELIEF DEPARTMENT BALTIMORE & OHIO RAILROAD CO.

In considering the matter of protection for railway employes, the first inquiry naturally presenting itself is, "What are the specific dangers to which they are exposed, and to what degree and how can they be overcome?"

Before this audience, it is unnecessary to present any evidence that the occupations of the majority of these people are hazardous. It may be safely assumed that the reports of the interstate commerce commission are correct in stating that there are, approximately, 700,000 railway employes in the United States. In attempting to ascertain definitely the whole number of employes killed and injured, they are confronted with the fact that the majority of railway companies do not keep an accurate record from which this data can be obtained. It is known that about the only record they have is the personal injury reports on file.

Fortunately, however, for the purpose of this article a record has been kept and published for some years past by at least five of the great

lines, from which we learn the average number killed and injured on those lines, and it is fair to assume that their casualties are no greater than those of other lines.

From this source it is found that taking all classes of labor employed on the railways of the United States, the number injured will average 240 per thousand, or about 168,000 per annum. This is an enormous number and suggests the operation of a large army in an active campaign rather than that of an everyday commercial enterprise.

The companies who keep exact statistics of these injuries and their causes are few, but important in the railway world, comprising the Pennsylvania, Pennsylvania Company west of Pittsburgh, the Chicago, Burlington & Quincy, the Philadelphia & Reading, and the Baltimore & Ohio. It is to be deplored that the number of such companies is so limited as it is only by such records that the managements of the companies can be made to understand and appreciate the enormous responsibility resting upon them and the necessity for making every possible provision for the prevention of accidents and for the care of those who suffer therefrom.

The record kept by one of the companies referred to shows the following causes of accident and the percentage of deaths and disablements arising therefrom :

	Death.	Injury.
Putting on or off brakes - - - - -	2.2%	1.3%
Coupling cars - - - - -	11.9	13.9
Caught between cars - - - - -	3.3	1.4
Run over by cars - - - - -	16.7	.8
Struck by cars in motion - - - - -	10.5	.9
Fall on duty - - - - -	1.7	9.8
Struck by foreign bodies - - - - -	.5	4.9
Fire, steam, etc. - - - - -	.0	2.8
The shifting of freight - - - - -	.0	.2
The handling of freight or baggage - - - - -	.3	1.9
Lifting - - - - -	1.2	3.0
Caught by machinery - - - - -	.3	2.7
Caught by miscellaneous - - - - -	.3	6.1
Miss-step - - - - -	.0	1.7
Struck by overhead bridge - - - - -	5.4	.5
Struck by reverse lever of engine - - - - -	.0	.4
Throwing of switch - - - - -	.3	.8
The explosion of torpedo - - - - -	.0	.1
Falling from train - - - - -	18.8	7.3
Getting on or off train - - - - -	2.7	5.4
The handling of tools and materials - - - - -	.6	31.9
Struck by water plug, signal post, telegraph pole, etc. - - - - -	1.8	.5
Wreck and collision - - - - -	21.0	3.0

From this table it will be observed that 36.2 per cent. of the deaths are attributable to the use of link and pin couplers and hand brakes; 21 per cent. to wrecks and collisions; 16.7 per cent. to being run over by cars; 10.5 per cent. to being struck by cars, a total of 84.4 per cent. Only one other prominent cause is that of overhead bridges, amounting to 5.4 per cent. or 89.8 per cent. in all. The principal causes of injury are coupling and the use of hand brakes, 23.9 per cent; handling tools and material, 31.9 per cent; fall on duty, 9.8 per cent; caught by miscellaneous, 6.1 per cent; getting on or off train, 5.4 per cent; struck

by foreign bodies, 4.9 per cent, a total of 82 per cent. This gives us definitely their specific dangers and their degree.

It is well known that a very large per cent of accidents are caused by the personal neglect of employes, arising from familiarity with the dangers attaching to their occupations.

There are other causes of accident for which the employes are personally responsible and which the companies can only partially guard against. The principal ones are the immoderate use of liquor by those engaged in hazardous pursuits; the misuse of time which should be devoted to rest and the consequent unfitness for duty when their turn comes; discontent and lack of interest and consequent inattention at times when all their faculties should be most alert.

Having admitted that protection is needed, let us see what is being done or what can be done in that direction. In the first place it must be clearly borne in mind that the business interests of the companies demand that as few accidents as possible shall occur, for the very potent reason that they mean loss to the company both directly and indirectly, in that they have to pay damages to persons and for goods destroyed, for replacing rolling stock, track, etc., and that passengers and shippers very naturally avoid patronizing a road having an unusual number of accidents. This is perhaps the principal motive actuating directors and stockholders, who do not personally see the results of accidents, in providing men, measures and means for their prevention. It is to the honor and credit of the operating officials that humanity largely actuates them in recommending the introduction of every possible device.

It is well known that the railroads expend an immense amount annually in providing measures of safety, such as the block system, interlocking devices, new bridges, replacing trestles with permanent structures, improved machinery and whatever else suggests itself to competent men employed solely for the purpose of making the lines safe and who personally visit and inspect all portions of the companies property for this express purpose. Every railway has a large corps of officers and men whose only duty it is to provide safety and these persons can surely be trusted to do their whole duty in this respect.

The recent act of Congress requiring the substitution within a certain period of air brakes and automatic couplers for the link and pin coupler and the hand brake, will remove the most prominent cause of injury to train men, although it is to be expected that these men will be more exposed during the transition period. To what extent the item of wrecks and collisions will be modified can only be ascertained by future experience.

Of the other causes of accident, that of being struck by overhead bridge, mail crane, switch stand, etc., would seem avoidable by elevation, removal, or the use of efficient guards and warnings and it is believed that ordinarily this is done so far as practicable. It being apparent that, although the companies recognize their obligations in this respect and endeavor to meet them to the best of their ability, accidents will still happen, and no matter from what cause some systematic method must be devised for the care of these people in alleviating their suffering, providing for them during disability and securing a living, upon recovery, for those so crippled that they cannot resume their former occupations.

It is thought that the general public has no conception (largely due to the policy of the companies in minding their own business) of what is being done in this direction, nor does the employé usually appreciate the efforts made in his behalf until his turn comes.

On the lines of the companies previously mentioned, when an employé is injured, there are exact directions published, accessible to all and in the pockets of most of the men, what to do for the injured person. These rules show the names and addresses of all the surgeons employed by the company for this express purpose, and whose services can be obtained free of expense to the employé, without regard to the manner in which he received his injury and whether there is any liability on the part of the company or not. Each surgeon is required to furnish a substitute in his absence; but the rules provide that any surgeon may be called in case of emergency and his bill will be paid by the company. If the case is a serious one it will be sent to a first-class modern hospital where all the expenses for board, nursing and treatment will be borne by the company, or if the hospital is not convenient or the patient is too dangerously injured for removal, competent nurses are provided and he has the benefit of the advice and skill of specially qualified surgeons called to the aid of the local surgeon. His disability is immediately reported to the proper officer of the company, and he is carefully looked after by a local medical officer other than the surgeon in charge of the case, and any neglect or inattention is promptly corrected.

In the published rules the location of comfortable stretchers and emergency cases containing surgical supplies is given. On some roads these stretchers and emergency cases are placed on every train.

During the time of such disability the employé is paid a per diem allowance equaling one-half pay for six months, after which his allowance is reduced one-half, but continues during disability although it may last the remainder of his life, and at his death his family will receive the death allowance, ranging from \$250.00 to \$1250.00, without the payment by the disabled person to the fund from which this allowance is made, of one cent during his disability.

All of you connected with railroads know of cases of total disability such as the loss of both eyes, both legs, both arms and other injuries forever preventing the employé from earning a living in any capacity. The arrangement known as the relief department fully provides for this class of cases, usually so troublesome and expensive to railway companies.

When the employé is able to go about, if he has lost a limb, crutches are provided, and the money is advanced, without interest, for the purchase of an artificial limb of the best manufacture at the lowest prices and upon such terms of repayment as the employé is entirely able to make. In cases of special hardship, these limbs are provided entirely at the expense of the company. When the man is able to work, although not at his ordinary occupation, a place is provided where he can at least earn a living and usually as much money as at any other occupation he is qualified for.

If the accident is a fatal one, either at the time of its occurrence or shortly thereafter, the body is placed in the hands of an undertaker and decently prepared for burial before being delivered to the family.

Where relief departments are in operation the widow receives without delay, a sum of money, ranging from \$500.00 to \$2500.00, thereby relieving her from immediate anxiety. This is all the more appreciated when, as those of us engaged in this particular branch of railway service can testify, in the majority of cases there is not enough ready money or property left by the deceased to pay the undertaker, much less to make any provision for his family. It is the policy of some companies, and should be of all, to provide employment for such boys of deceased employes as are of suitable age and for the widow in such positions as she can fill, such as cleaning cars, care of stations, etc.

There should be careful investigation to ascertain the exact cause of each accident and radical measures taken to prevent a recurrence. This is already done by some companies and in addition an inspection at least once a month, by competent officers, of all the property and a report made of everything observed of an unsanitary nature or in any degree affecting the safety, health and comfort of employes and patrons.

It has been shown what progress has been made in the past few years in providing against such casualties in the railway service, but there is another class of employes who are entitled to consideration; those who, escaping accidental injury of a disabling nature, find themselves without means of support, whenever through old age or infirmity, they become unable to perform the services required of them or to earn a livelihood in other pursuits. This class is provided for by at least one company. One other company has already accumulated a large sum to be eventually devoted to this purpose although not yet operative.

It seems almost farcical to present any argument in support of the wisdom of such a plan, but I cannot refrain from quoting the celebrated Dr. Farr of England, who boils it down to this: "In the first place, superannuation is a guarantee of fidelity; in the second place it encourages efficient officers; in the third place it retains good men in the service; in the fourth place it induces men to retire when they become old or inefficient from any cause; and in the fifth place it prevents old employes from falling into disgraceful dependence or distressing destitution, which would be a public scandal and deter desirable persons from entering the service."

Further efforts in the direction of protection and improvement are or should be made by the companies in the more careful selection of those entering the service, having in view not only the applicant's ability to fill the subordinate place he immediately seeks, but his capacity for the higher ones he may be expected to reach either by promotion or emergency. In selecting brakemen the train master should take into consideration the probability and expectation of the man becoming a conductor, train master, or even filling a higher position, and judge him accordingly. In some companies the applicant is subjected to a rigid physical examination, not only as to his present health and prospect for longevity but his actual physical fitness for the place he seeks. He is further examined (required by law in some states) to determine whether or not he is defective in sight, hearing or color sense. The importance of this last examination is fully demonstrated by the fact that not less than four per cent are found so deficient that they would be dangerous operatives upon any road requiring the use and observance of form and color signals. These men are rejected for train service but can be

employed in other capacities where their deficiency can cause no danger to themselves or others.

Further protection is afforded by the refusal of the companies to employ men who are known to indulge immoderately in intoxicants. Indeed it may be said that they are beginning to be shy of those indulging even moderately or suspected of doing so. Persistence in this direction will eliminate one of the most prolific causes of accident, to say nothing of the moral effect on the men and the communities in which they live. The Honorable John T. Mason, late United States commissioner of internal revenue, who is most earnestly interested in the cause of temperance, remarked very recently, during a discussion as to the best methods of handling the liquor traffic, that the Baltimore and Ohio railroad company had done more to advance the cause of temperance in the state of West Virginia than all the legislation and temperance societies put together.

An attempt has been made to give you a slight idea of what is being done by some of the companies for the protection of the employés, and whose example might profitably be followed by all other companies and in the course of time develop the best results.

We are further asked to consider what can be done for the improvement of these people. This is of such importance that it is entitled to the most careful consideration. The experience of the last thirteen years in this particular direction forces the belief that this is best accomplished by the establishment upon the lines of each great company, and upon the smaller ones by consolidation, of a special department having the protection and improvement of the employés of that company its sole business. That such a department can be maintained at an actual saving to the company is capable of demonstration by companies already operating in this direction.

It will be found that such a department becomes the recipient of many valuable suggestions from all sources, and by judicious selection can actually protect and materially improve the condition of employés by the expenditure of less money than the companies are now paying for injuries to persons, wages to injured persons, providing places for old employés unable to earn their wages, legal expenses, etc. It can establish better relations with their employés; do more in a systematic manner for a larger number and materially improve the service in procuring and retaining better men therein. To such a department should be added what is now done by only two roads, namely, a savings bank for employés. This can be conducted with few details and as simply as possible, each agent of the company becoming a depository, the company holding the money strictly as a trust fund and guaranteeing the safety of all deposits and a low rate of interest. The fund so accumulated can be safely loaned to other employés at a legal rate of interest for the purpose of securing homes for themselves on the lines of the company. This is not an experiment. It has been in operation on one of the trunk lines for many years without the loss of a dollar to either the company or the depositors, and has been the medium through which hundreds of employés have acquired homes, who could never have done so otherwise. The profits from the money thus invested are credited to the depositors (who are the only stockholders) thus materially benefitting both classes. This feature has done more than it

promised, in that it has not only paid to its depositors more interest than was guaranteed, but more than is paid by most conservative savings banks.

The advantages of an institution of this kind are manifold. It convinces the employé that the company has some interest in his welfare, and by adding its contribution to his, with other valuable considerations, places him in a more independent position when compelled to lose time by reason of sickness and injury, preventing the loss of self respect, and any sense of humiliation as the recipient of the charity of his comrades, no matter how freely bestowed, and enables him to resume his occupation without the handicap of serious debt or obligation and its consequent discontent. It affords him the opportunity of safely investing small savings, and acquiring a home of his own on the most advantageous terms.

That the railway company profits by this goes without saying. If it did not secure indemnity against damage suits it might still be fully compensated by attaching its employés to its service by a community of interest at a little cost.

It is to be regretted that the tendency of the managers of labor organizations is to give the employé the impression that the company is invariably antagonistic to his interests; and having absorbed this idea, the only remedy is such practical efforts on the part of the company as will tend eventually to convince him that there is more interest in his welfare on the part of his employer than he has hitherto had credit for. This persistence in kindly acts, not subversive of good discipline, will finally have its weight and will either result in a change of tactics on the part of his counsellors or in his turning from them in distrust.

One of the members of your committee (Mr. M. M. Kirkman) struck a key-note when he says in his work on the Maintenance of Railways:

"No one who is dependent on the good will and fidelity of others for the maintenance of his interest can afford to shun their acquaintance, or to permit them to remain in ignorance of his good intentions towards them. On the contrary, his duty and interest alike demand that he should cultivate such relations with them as may be necessary to assure them of his constant and kindly regard, and the beneficence of his purpose.

"When it is necessary that men should entrust the immediate and general management of their property to others, they must do so unqualifiedly and heartily; but such delegation of power should never extend so far as to relinquish the right and duty of enquiring into the status of subordinate employés. The proprietor will ever consult his welfare by such manifestations of interest in his servant and any general or prolonged neglect on his part to fulfill this cardinal duty of ownership will redound to his great and permanent injury. By many owners such manifestation of interest is thought to be subversive to good discipline, and it is possible that they have been encouraged in this monstrous delusion. It is sufficiently necessary to say that where the owner of the railroad cannot come in contact with his employés without jeopardizing the discipline of the organization, it ought not to require an outbreak among his servants or the destruction of his property to convince him that there was a radical defect somewhere in its administration. The discipline of the organization that is dependent on terrorism, upon ostracising and sequestering the employé and upon separating him

from the acquaintance and sympathy of the owner is manifestly a perversion of responsible methods of government, and where they are practiced evinces mismanagement and may be accepted as evidence of discontent and insubordination and outrageous disregard of the rights of owners by those who encourage or practice it. If the tendency of corporate history in the United States teaches one fact more clearly than another, it is that the owners of such property will find it to their advantage to manifest immediate and personal concern in its affairs and the affairs of those who operate it, lest their personality be lost and their property alienated or its value seriously impaired. The possession of property presupposes the duty of guardianship, including a paternal interest in those who operate it, and its preservation to the owner will ultimately depend upon the general and wise exercise of this duty."

Almost directly on this same line, Dr. W. T. Barnard in his admirable article on "The Relations of Railway Managers and their Employés" says: "One result of the indifference of railway managers towards their subordinates has been to array against them agencies most potent in fermenting discontent—secret societies, brotherhoods and similar organizations; for it is a notorious fact that they owe their success mainly to the assistance and relief they hold out to their members and their families in case of sickness, disablement and death. Thrown upon his own resources, the man who has constantly before him the perils of his vocation and the misfortunes that would result through inability to earn wages, naturally enrolls himself in an organization that promises the needed protection. Constantly confronted with the history and with comparisons of the grievances of his fellow members and without motive or cause for attachment to his employers, perhaps unconsciously feelings of discontent and ill-will will arise, and naturally he meets any reduction of wages or suspension from labor with outraged feeling and often with violent actions, borne of long though secret hostility where there should have been but fraternity and good-fellowship of affiliated interests."

Mr. Charles Francis Adams, Jr., on the subject of "Promoting Identity of Interests between Railway Managers and Employés" says: "I have been through the mill and believe that a little attention to these matters would give our owners a more zealous and earnest service; would foster and preserve a higher *esprit de corps*; would develop an attachment to the line and its owners; would remove the possibility of strikes and riots, and would lead to the securing of a better grade of men with increased efficiency and increased net earnings; all this can be secured at small cost and with little trouble to the local management."

The power to discharge any employé for fault by subordinate officials should be materially modified, if not absolutely abolished. They should only be vested with the authority to suspend from duty and pay until all the facts were submitted to a board of enquiry and the suspended employé allowed to appear before that board and to defend himself. It is perhaps unfortunate for the success of this plan as indicating the company's interest in affording exact justice to the lowest of its servants, that what has been done and what is being done in that direction has been grudgingly accorded upon the demands of the employés.

The doctrine of profit-sharing, so strongly advocated by persons interested in political economy and social science, could hardly be applied to the railways at the present time. Examination of the earnings and expenses of the principal companies will convince any one that employes are receiving more money under the present schedule of wages than if they shared all the profits with the stockholders.

Efforts are being made by some of the companies to lessen the temptations of their servants by providing reading rooms, circulating libraries, etc., but much more must be done to attract the men to these places and in interesting them therein. Entertainments entirely of a religious or moral character fail to attract. Those who have homes could be largely kept there if they could have suitable reading matter, without expense, to take home for the use of themselves and family. A free circulating library of over 10,000 volumes has been in use on one of the trunk lines for the past ten years, and the books are sent to employes, wherever located, by train mail without cost to them or requiring any security. The circulation of these has been most extraordinary and there has been no abuse of the privilege. This library was created by subscription made by the officers and directors and the operating expenses are paid by the company.

The unmarried, however, must have something more attractive than reading. The reading rooms should be occasionally used for other purposes, such as readings, dramatic entertainments, concerts, dances and lectures on subjects likely to interest and benefit this class and to all of which the "lasses" could be invited. These rooms should be regularly visited, unofficially, by the most prominent officers and better impressions of both officers and men would be gained and no dignity lost by such intercourse.

It is most sincerely hoped that this subject may be brought to the serious consideration of those entrusted with the management of these great interests and they will realize that their duties to the thousands in their service are not concluded by the mere payment of wages for services rendered. It is not expected that the millenium will be advanced by any effort to protect the lives and limbs of these people and to improve their condition, but it may certainly be assumed that the business interests of the corporations will be benefited if more interest is had in the welfare of their employes and will unquestionably lead to the creation and maintenance of better relations between railway managers and their employes.

RELIEF OF RAILWAY EMPLOYÉS.

R. F. SMITH, SUPERINTENDENT VOLUNTARY RELIEF DEPARTMENT
PENNSYLVANIA LINES WEST OF PITTSBURG.

The subject assigned me by the committee is "Relief and Superannuation of Railway Employés."

Having little either of experience or observation relative to the second point, I beg to confine your attention, in the main, to the subject of relief as now conducted by a number of the leading railways of the country.

The time for preparation subsequent to receipt of the committee's request, has been brief. I must beg indulgence if the paper gives evidence of haste and imperfection.

From the early days of railroading the employés, impelled by the always laudable motive of self-protection, have sought to organize themselves into mutual associations of one form or another, with a view to the alleviation of distress in individuals and in families, arising from sickness, casualty, infirmity, or old age, and from death. The primitive subscription paper circulated among the friends of those needing aid, supplemented as it often was by appeals to the management of the railroads, was at once the prophecy and the suggestion of the relief scheme that we have today. The rapidly increasing ranks of employés in due time outgrew this crude method; the burden grew too heavy for the comparatively few who must contribute to the increasingly frequent calls. A railway manager says: "Before the establishment of the relief association there was hardly a case of sickness, accident, or death, where the fellow-members of the division, or the department in which the case occurred, were not called upon, or at least expected, to make a contribution towards its relief." Moreover, the great majority of cases involved no legal liability on the part of the employing companies.

The mutual benefit associations and fraternal organizations among the employés followed, and with them the system of gratuities, established by the railroad companies. But neither so was the need met. Recognizing, however, the claims of a common humanity, and the moral obligation to aid in relieving distress, particularly among employés of long and faithful service, and, waiving the question of legal liability, the employing companies came at last to the annual expenditure of large sums for continued compensation of employés during disability, and for gratuities to them and their families, reaching thousands and tens of thousands of dollars. This practice was essentially vicious, both in principle and results; as toward the employing company, inequitable and more and more impossible of proper and discriminating administration; as toward the employés demoralizing, and necessarily inadequate. Moreover, it was manifestly unreasonable, and, indeed, imprac-

licable, that the companies should provide for the relief of all the numerous ills to which such large bodies of men must at all times be subject, however much they might deplore them.

The matter became the subject of earnest thought and study on the part of railroad managers. Meantime the associations promoted by the employés, in the great majority of cases, rising and flourishing for a time, were found to lack the elements of stability and permanence. Dependent both for the maintenance of their numbers and the collection and proper disbursement of their funds upon voluntary, and for the most part unpaid officers, whose duties in the service precluded the thorough attention necessary to assure success, one after another they waned and were disbanded. It is on record that in a comparatively small portion of our country, more than four hundred of these and kindred associations failed and were wound up within the short period of eight years. Great injustice resulted to those members most faithful in the support of these organizations. Paying maximum contributions by reason of long continued membership, they received a minimum of benefits, the result of reduced membership in the later years; or nothing at all, when at last the institutions were closed up. Manifestly something more permanent and reliable was a necessity.

Various methods were devised by different companies to meet the requirements. In some cases the employés were aided in securing advantageous rates from existing life and accident companies; and facilities for payment of premiums were extended through the paymaster, by deduction from the monthly pay roll, authorized by the employés. Hospital service was established by some, particularly by the larger lines extending into the new and sparsely settled regions of the west and south, the employés paying a monthly assessment for its support. Still other companies made grants of greater or less amount toward the expenses of the employés' associations. These methods all were found to come short of meeting the need; the elements of financial stability and permanence were largely lacking. Moreover, while they gave protection in the case of disablement and death from accident, there was no fixed nor reliable provision for cases of sickness. Against this everywhere prevalent cause of deprivation and distress, no provision is to be found in any public insurance or indemnity company. Says a railway manager, writing on this subject: "Insurance companies have learned by experience that an insurance indemnifying persons against losses by sickness cannot be made remunerative at any rate which they would feel able to pay, and all companies which have attempted this class of insurance coming within my knowledge, have abandoned the project." Only where men are employed in large numbers, and under thorough organization and discipline, is it feasible or safe to undertake indemnity against sickness, and even then to a limited extent only, and under thorough safeguards.

The desideratum to be attained was a plan by which the employé should be reliably assured of protection in case of disablement, from whatever cause arising, and of provision for those dependent upon him in case of his decease. The situation being such, the employés—many of them—began looking to the companies for aid in the solution of the problem, and presented their requests accordingly. Following the suggestions of previous experience, and profiting by the lessons inculcated

in the failure of earlier methods, a system of relief was devised, embodying the principle of coöperation between employer and employed, permanent in its character and financially secure. It has been received with great favor among the employés as shown by its rapid growth; and its beneficent results thus far attest its value. It has been adopted and is now in successful operation on the Pennsylvania, Philadelphia & Reading, Baltimore & Ohio, and Chicago, Burlington & Quincy railroads, the Pittsburgh, Cincinnati, Chicago & St. Louis railway, and the Pennsylvania Company's lines. Its principal features are as follows:

A fund, formed chiefly by contributions of the employés, assigned by them for the purpose out of their wages, and collected monthly on the pay roll, to which are added appropriations by the company, interest on monthly balances paid by the company on funds held by it, income from investments, and gifts or legacies which may be made to the fund.

There are five classes of membership, regulated by the amount of wages earned, and contributions to the fund range from 75 cents per month for the lowest to \$3.75 per month for the highest class. A provision by which death benefits may be secured, beyond and in addition to those provided for the several classes, may increase the contribution in the case of a member beyond the age of sixty years, to a maximum of \$6.75 per month for an aggregate death benefit of \$2,500. No contribution is payable by a member while under disablement.

Membership is secured through a regularly prepared application, by any employé not over forty-five years of age, upon passing a satisfactory medical examination, and is evidenced by a certificate furnished the member upon approval of his application.

The fund can be disbursed only for benefits to employés in cases of disablement from accident or from sickness, and to their families and other beneficiaries, as designated in their applications, in case of death. Any surplus found at the end of each period of three years is to be applied toward a superannuation fund, or in some other way for the sole benefit of the members. Nothing can be diverted from the fund for the expenses of the plan, which are wholly borne by the company from its own treasury.

Benefits as follows are payable from the fund, but only upon duly attested claims, full provision for verifying which is made. In cases of sickness, after the first six days, forty cents per day for the lowest class, and in multiples of that sum for each higher class, to a maximum of \$2.00 per day for the highest, to continue for fifty-two weeks. In cases of accident in the service, from the first day of disablement, fifty cents per day for the lowest class, proceeding by multiples as before to \$2.50 per day for the highest class. Sundays and holidays are included in the allowance of benefits. In case of death \$250.00 is payable on account of a member of the first class, and accordingly for higher classes up to \$1,250 for the highest. The death benefits may be increased not to exceed double the amount provided for the class in which membership is held. The maximum death benefit is \$2,500. Free surgical attendance is provided in case of disablement by accident.

The fund is administered, and the membership promoted and maintained, by a department of the service established solely for the pur-

pose, and known as the relief department. This department is under the general supervision of an advisory committee of thirteen members, six of whom are appointed by the board of directors of the railroad company, and six are elected by ballot, under proper safeguards, by the members. The general manager is a member *ex-officio* and chairman of the committee. All disputed questions are settled by the advisory committee, to which every member has the right of final appeal.

The business of the department, subject to the control of the general manager, is directed by a superintendent, aided by a suitable clerical and medical staff. The accounts and disbursements of the department are conducted in accordance with the methods established and in use by the company.

The railroads are sub-divided into medical districts, each in charge of a medical examiner for reporting upon all cases of disablement, and for examination of applicants for membership, together with such other appropriate duties as may pertain to the office. The medical staff is under the immediate supervision of a chief medical examiner, located at the office of the superintendent and subject to his direction.

The railroad company is made the trustee of the fund, through its relief department, by regulations which become the instrument of trust between the employes and the company. It guarantees fulfillment of the obligations of the department, and agrees to make good any deficit found in the fund at the end of each three years. All the expenses of the relief department are paid by the company, and it grants the facilities of its organization, and the services of its officers and agents in aid of its operations.

The company also makes provision at its own expense for continuing benefits, in the discretion of the board of directors, in cases of sickness which may continue beyond the fifty-two weeks to which payment from the fund on this account is limited.

The plan here sketched is that in operation for the past seven years on the Pennsylvania railroad and its affiliated lines east of Pittsburgh, and more recently on the Pennsylvania lines west of Pittsburgh. The plans adopted by the other companies named above, vary more or less from it in minor details, but the salient features of all are substantially the same, being characterized by coöperation between employer and employed, as evidenced:

1. On the part of the employes by the provision of a relief fund, composed chiefly of contributions made by themselves.

2. On the part of the employing company by acceptance of the trusteeship of the fund, with guaranty of its sufficiency, and assumption of the responsibility of administration, including all expenses connected therewith.

3. The administration of the trust through a department of the service, created solely for the purpose, which is under the general supervision of an advisory committee composed jointly of representatives of the employes and of the company.

Membership is voluntary on the part of the employes of the companies named, excepting in the case of one company, which, with some exceptions, makes it a condition of employment in the service. Members may withdraw at their pleasure, on giving proper notice. Voluntary

withdrawals, in the experience of the Pennsylvania lines, are one per cent of the membership per annum only.

The relief fund, it will be seen, combines in one contribution a payment which secures to the member benefits of three different kinds viz.: For disablement by accident, for disablement by sickness, and for death from either cause.

From experience thus far had, the cost per annum of each of the three risks, for a membership carrying \$1,000 death benefit, may be stated approximately as follows:

Life risk — natural death — average age, 36 years - - - -	\$13.00
Accident risk — including disablement and death - - - -	10.00
Sickness - - - - -	13.00

Comparison with the current cost of similar classes of indemnity, secured through other methods, will be found greatly to the advantage of the relief fund. This advantage will appear, in still greater degree, from a consideration of the benefits secured, thus:

At a cost of \$13.00 per annum, a death benefit of - - - -	\$1,000
At a cost of \$10.00 per annum, accident benefits as follows:	
Possible maximum disablement benefit for 1st year - - - -	728
“ “ “ benefit for 2 years - - - -	1,092

Accident benefits continue at half rates after the first year, during disability. The possibilities may be extended indefinitely by adding \$364 for each additional year. Should death ensue at the close of any given year, during the continuance of disablement, \$1,000 must be added to the above figures, thus:

Possible maximum for disablement and death—	
For first year - - - - -	\$1,728
For two years - - - - -	2,092

And an addition of \$364 for each subsequent year, during the continuance of disablement.

In case of sickness, at a cost of \$13 per annum, benefits as follows:

A weekly allowance of - - - - -	\$11.20
Possible maximum disablement benefit for 52 weeks - - - -	582.40
Possible maximum benefit in case of termination by death on the last day of 52 weeks - - - - -	1,582.40

These figures apply to membership in the fourth class, and to the other classes proportionately, as indicated by their numbers.

Whatever else may be predicated of the relief scheme, there can be no question as to its liberality. Its provisions are ample for the fullest practicable protection of those who may be so unfortunate as to become entitled to its benefits.

The advantages of the relief scheme are briefly recapitulated as follows:

Indemnity, combined in one risk by the payment of one contribution for all, against any and all personal disablement and for death.

Low cost and large benefits.

Benefits in case of sickness, not dispensed as charity, but paid as the member's right.

Free surgical attendance, in cases of disability incurred by reason of accident in the service.

Uniform and fixed rates of contribution, with monthly payments in

easy sums, avoiding the uncertainty and hardship often of assessment calls; and by collection through the pay roll, obviating risk of forfeiture of benefits for non-payment of dues, through oversight or otherwise.

No membership or entrance fees; no medical examiner's fees; no annual or quarterly dues.

Exemption from any payment of contribution while entitled to disablement benefits.

Benefits in fixed and assured amounts promptly paid. Payments and amounts are not dependent upon responses to assessment notices.

No burden for cost of administration. All expenses met by the railroad company, without charge upon the fund. All moneys received for the fund applicable only for the direct benefit of the members.

Financial soundness and efficient administration, assured by the guaranty of the fund by the railroad company, and its custody thereof; and the use of its organization and facilities, without charge, including the relief department created and maintained by it solely for the administration of the fund.

Some idea of the results, thus far attained, may be had from the following statistics:

The relief fund of the Pennsylvania lines west of Pittsburgh—the Pittsburgh, Cincinnati, Chicago & St. Louis railway, and the Pennsylvania company—during the first three and one-half years, paid benefits, amounting to \$705,810.67. There was paid, in addition, by these companies from their own treasuries, for cases of sickness which continued beyond the limit of benefit allowance from the relief fund, \$8,318.60, making a grand total of \$714,129.27. Upon settlement at the close of the first three years' period, a surplus of \$7,865.88 was found in the Pennsylvania company fund, which, with all income therefrom, is to be set apart and used for the sole benefit of the members, as before explained. At the same time a deficit was found in the fund of the Pittsburgh, Cincinnati, Chicago & St. Louis railway company, of \$20,760.85, which amount has been assumed and made good to the fund by that company, as required by the regulations.

From the relief fund of the Pennsylvania railroad, from its inception in 1886 to the close of its seventh year, in December last, benefits have been paid out aggregating \$2,584,427.84, and in addition \$79,240.95 have been paid by the company from its own treasury for cases of sickness which continued beyond the limit of allowance from the relief fund, making a grand total of \$2,663,668.79. Upon settlement for the first triennial period of this company's relief fund, there resulted a surplus of \$189,866.11, which, with accumulated income, amounted on December 31st, 1892, to \$219,954.25. This surplus is held, as provided in the regulations, as a nucleus for a superannuation fund or other use for the exclusive benefit of the membership, as may be finally determined upon. A deficit appeared at the second triennial settlement, for account of which the company has paid into the relief fund \$56,864.94.

The total benefits paid up to December 31, 1892, on all the Pennsylvania lines between New York and Chicago, covering a period of seven years for the lines east of Pittsburgh and three and one-half years for the lines west of Pittsburgh, amount to \$3,377,798.06.

The expenses, paid wholly by the companies, have been \$667,197.64 in addition.

For the period during which the present plan has been in operation—seven years for the Pennsylvania railroad company, and four years each, more or less, for the other railroad companies first above named—the aggregate disbursement of benefits by all, reaches the sum of \$6,138,814.57, an average of more than one and one-third million dollars per annum. The aggregate for the last year, 1892, is \$1,640,708.

The aggregate membership at the close of last year, for all the companies named, was 94,967.

The Baltimore & Ohio railroad company introduced a plan of coöperation with its employés as early as the year 1880, having many points in common with the one under consideration. A charter was obtained from the state of Maryland in 1882, incorporating the Baltimore & Ohio Employés' Relief association. This was repealed in 1888, and the association was then re-organized on a plan substantially similar to that herein described. Previous to the re-organization, about \$1,800,000 had been paid in benefits to the employés and their families. This amount is not included in the grand aggregate of relief fund payments given above. Several other companies coöperate with their employés in relief schemes of more or less merit, but none of them is so thoroughly organized and equipped as that under consideration.

The railway management and the railway employés of this country are greatly indebted to two men of broad humanitarian and christian views, pioneers in this field. I refer to Mr. J. A. Anderson, of the Pennsylvania railroad, the author of the scheme which has been described, and Dr. W. T. Barnard, of the Baltimore & Ohio railroad. Dr. Barnard says: "The writer has, for a considerable time studied the relationship existing between the managers and employés of many of our large corporations, and his observations seem to justify the conclusion that, whereas in no other business employing large bodies of labor is there a larger field for cultivating cordiality and reciprocity of interests between owners and employés than in railroading, also in no other business (except perhaps mining) have such opportunities been more neglected."

Mr. Anderson writes concerning the Pennsylvania railroad relief: "No person in a civilized community can rightly ignore his obligations to use his means and opportunities to benefit those with whom he is brought into contact, who are not equally favored with himself. Shall it be said that a number of individuals, united together in a coöperative capacity, are thereby absolved from such obligations? Should it not rather be insisted that the obligation is the greater upon a member of the community thus artificially created by it, and thereby endowed with powers and opportunities for benefiting its members far greater than can possibly belong to any single person." And again: "A regard for and desire to promote the good of those in their employ has prompted the company (Pennsylvania railroad) to assume the risk and responsibility of this undertaking. It is believed to be in conformity with the spirit of the age, which demands a better state of feeling between the employers and the employed, begotten of that kindness and justice which correct minds of every age have held to be due from those to whom providence has entrusted the power to benefit or oppress. There could be no motive sufficient to warrant entering into so expensive a scheme

with all the difficulties attending it, if that motive were not such as to meet with approval when clearly understood."

These are noble words and true, and I am sure, will meet with the approbation of all.

It is gratifying to note the interest taken by the Interstate commerce commission in this subject. I quote from the report of the commission for the year 1889: "Though questions relating to the well-being of men in railroad employ, and of their families, are not by the act to regulate commerce expressly referred to this commission, they are not so far foreign to it as to preclude their receiving some attention at our hands. Indeed, the prosperity of railway corporations, and the safety and usefulness of the service performed by them, is largely connected with the condition of their employés, and it is therefore not only natural that public interest in such condition should be largely enlisted on humanitarian grounds; but that also it should receive the attention of public authorities because its being a matter of general concern. . . . A comprehensive view of the relations which exist between them and the corporations by which they are employed, is therefore no less interesting than important; and it seems desirable to the commission that facts should be gathered, showing not only what provisions were made in the nature of insurance for the persons and families of employés by organization among themselves, but also to what extent their employers have made provisions for funds to accomplish a like purpose."

There is an evident and growing sense of obligation on the part of railway corporations to look after the welfare of the employés, which is a sign of promise. Nothing can more conduce to the satisfactory and economical transaction of business than a cordial sympathy between employer and employé. In this is found justification for any and all reasonable expenditures, and the sorry experiences of the past few years emphasize the need of wise measures to this end.

If this discussion shall be the means of calling wider attention to this subject, and of promoting a deeper interest on the part of railway managers in the proper relation of the corporation to the welfare of its employés, particularly when they are overtaken by calamity or old age, it will amply repay the labor of its preparation.

Thanking the committee for the opportunity afforded for the discussion of the subject, and thanking you, gentlemen, for your attention, I commend the subject to your further careful consideration, in the hope that it may lead to action, profitable alike to railway corporations and their employés.

III.

RAILWAY HISTORY AND DEVELOPMENT.

THE EVOLUTION OF THE AMERICAN RAILROAD SYSTEM.

BY JOSEPH NIMMO, JR.

In addressing this congress upon a topic so broad and so comprehensive as The Evolution of the American Railroad System it is of course necessary to confine my attention to some special treatment of the subject, and to some particular line of thought embracing the history of railroad transportation from its genesis in the United States, about the year 1830, to the present time. I shall therefore ask your attention, first, to some of the conditions which constitute the environment of the American railroad system and which prescribe the law of its being, and, second, to the circumstances under which, and the acts by which, the physical unity of that system has been accomplished.

The railroads first constructed in this country gave but slight notice of the conditions under which transportation by rail is being conducted in this centennial year 1893. It was for several years a debated question as to whether the owners and managers of railroads ought to be allowed also to own and manage the vehicles and the motors employed upon them in the work of transportation. But the lessons of experience soon solved that question. Every consideration of economy, of safety and of public convenience pointed to an undivided corporate ownership and a common management of roadway and equipment, and accordingly that has become the established law of railroad development. Then the question was agitated for several years as to whether this new and wonderfully potential instrument of commerce should or should not be owned and operated by the several states of the union in order to avoid the danger of allowing private corporations so highly endowed with the control of commerce to set their own interests up above the public interests. The experiment of state ownership and management of railroads was tried in six states, viz.: Massachusetts, Michigan, Pennsylvania, Illinois, Indiana and Georgia. These attempts at governmental ownership and management were made at a time when, as hereinafter indicated, the governing conditions were much more favorable to success than they are at the present time, and yet all these exper-

iments resulted in absolute failure. From a purely economic and commercial point of view they demonstrated the wisdom of remitting the entire work of railroad construction and operation to private enterprise, and besides they also proved, beyond the shadow of a doubt, that the political institutions of this country are not adapted to the successful administration of transportation by rail.

Several states of the union besides those above mentioned made large loans and grants of lands, or became stockholders in railroads, from correct views as to their enormous powers for developing the natural resources of the country ; but such states prudently refrained from any attempt at state management of railroads. The state of Virginia, for example, was at one time a subscriber to two-fifths of the stock of certain railroads and canals, but was never tempted into the experiment of state railroad management. The state of Missouri became the owner of several railroads upon the default of their obligations to the state, but the results of state ownership in other states deterred the people of Missouri from the attempt to repeat such experiments. Accordingly the railroads thus acquired by foreclosure were sold in the year 1868 to private corporations.

The general tendency of all the states of the union during the last thirty years has been to withdraw entirely from any sort of financial association with railroad construction or management.

But the attempts at state control of railroad transportation cut a small figure in the otherwise unbroken evolution of the American railroad system under the plan of independent corporate ownership and control of both the roadway and the equipment employed upon it.

Until about the year 1850 the railroads of the United States were practically autonomies in the work of transportation ; that is to say, each line had an independent territorial traffic area, and in all matters relating to rate-making and general management was independent of all other railroad companies. But this state of affairs rapidly passed into a condition of the most extended and complex combination and coöperation, and of the most intense competition. Competing lines were rapidly constructed between all the more important sources of traffic. Many of these lines were constructed in competition with canals, and with rivers and other natural waterways. The tracks of coterminous lines were also connected, so that in time the railroads of the country formed one intimately connected network of transportation lines.

This concatenation of railroad lines has by an imperious force of circumstances, independent of any intent on the part of railroad owners and managers, led up to the evolution of the American railroad system, which today presents itself to the commercial, industrial and social interests of the country as practically one system of transportation with respect to travel and the transportation of merchandise and the mails.

It is my present purpose to point to the more important circumstances and conditions attending this evolution, and briefly to describe the commercial and physical forces whose interaction has evolved economic laws which today determine the course and govern the conduct of the internal commerce of the United States.

PRACTICAL DIFFICULTIES WHICH HAVE ARISEN IN THE COURSE OF
THE DEVELOPMENT OF THE AMERICAN RAILROAD SYSTEM.

The fact that the railroad is an avenue of commerce, the pathway of which is no wider than the wheel of the vehicle which moves upon it, at the very outset forbade that it should become in the ordinary sense a free highway. This physical disability, if such it may be termed, developed new experiences and led to important modifications of the law of the common carrier in its application to railroad transportation.

As lines were extended and connected, and as competing roads were constructed, the transportation interests of the United States rapidly assumed a degree of complexity which transcended the ability of the most intelligent to understand and baffled the skill of the most adroit railroad managers to carry into execution any proposed scheme of administration. Railroad managers were at their wits' end. For years wars of rates prevailed extensively and receipts from traffic were greatly reduced. Many railroad companies were driven into bankruptcy and others were seriously embarrassed.

The precise difficulty which confronted the railroad interests of the country was that as railroad lines extended and competition among them was developed the vitally important matter of determining rates was remitted to soliciting agents in all parts of the country, a class of men neither amenable to the caution which attaches to ownership nor governed in the exercise of their discretionary powers by any general line of policy, presumably at least, directed to the object of conserving the interests of the corporations by which they were employed. This procedure was not an expression of caprice or of any vicious propensity on the part of railroad managers. It was dictated by a force of circumstance and a compulsion of environing conditions entirely beyond their control, and it constituted a phase in the processes of a mighty evolution. In the course of time published freight tariffs furnished to the public no reliable information whatever as to the actual rates charged.

The commercial and industrial interests of the country suffered from this state of affairs even more than did the railroad companies. Discriminations as between shippers under like conditions became the rule, and rate making in almost all cases, became a mere matter of contrivance as between individual shippers and an army of irresponsible soliciting freight agents. Mr. Albert Fink, one of the ablest railroad managers of the country, thus described the manner in which, by the practical abrogation of their authority, the proprietors of railroads lost the power of determining what they should be paid for the services rendered by them to the public.

"The stockholders in the first place surrender their control to a board of directors, the board of directors surrender it to the president, the president surrenders it to a general manager, who in turn surrenders it to general freight agents of his own and a great number of other roads, who again surrender it to large number of soliciting agents, and finally these soliciting agents surrender it to the shippers. The shippers practically make their own rates. The result is confusion and demoralization of traffic, and no end to unjust discriminations between shippers and localities."

The general freight agents also made special secret contracts with the larger shippers for months in advance as to the rates which they should pay. No shipper knew on one day what rates would prevail on the next, nor had he any idea as to the rates which his competitors in trade were paying for transportation services. Thus the whole matter of freight charges became involved in incertitude. Falsehood and deception became the rule and fair dealing the exception. This state of affairs was, of course, utterly demoralizing to trade. It was also glaringly in contravention of the great fundamental law of commercial ethics, that in the competitive struggles of life men shall be permitted to live and labor in an open field and in a pure atmosphere. Loud and bitter complaints arose on account of the outrageous discriminations made in rates.

A more serious result, however, arose from the fact that glaring discriminations were made as between different localities and trade centers. For example, the rates were at one time, so much less from Boston to the west than from New York to the west that commerce was turned from the latter to the former city. Shipments in considerable quantities were also made from New York to Chicago via Boston. This condition of affairs, of course, gave rise to bitter complaints against railroad management generally. Trade and industry became demoralized by uncertainties which neither the merchant nor the manufacturer could foresee, and against which they could not provide.

In a word the fundamental economic fact that the railroad is not, and in the nature of things cannot be, a free highway of commerce on which rates are determined and fairly regulated by unrestrained competition among common carriers, had led up to a stage in the evolution of the railroad system of the country where it had gotten beyond all control. If this state of affairs had continued much longer all the railroads of the country would probably have been absorbed by and distributed among three or four great corporations. But that would have been calamitous, for it would have involved the danger of an absolute governmental control of the railroads with all the evils incident to such exercise of power.

It seemed for awhile as though the evolution of the American railroad system has proceeded beneficially up to a certain point and then falling into irretrievable disorder. And yet it was too absurd for serious thought to assume that the men of this generation had created a vast and potential system of transportation which they lacked the virtue or ability to administer. At last the dearly bought lessons of experience clearly proved that all the troubles just recounted were necessary for the inculcation of the fundamental truth that transportation upon a ohighly organized and sharply conditioned artificial highway commerce, such as the railroad, cannot be regulated by laws which totally different experiences have proved to be just and beneficial in the government of transportation on free highways of commerce. The men of this generation were simply summoned by those very troubles to the task of formulating and giving expression to laws evolved by the new commercial and economic experiences. But all this is merely a fresh chapter in the old, old story of human progress guided by rough experiences.

CERTAIN ESTABLISHED REGULATIONS OF TRANSPORTATION BY RAIL.

The more important of the new rules evolved as the experimental law of the railroad are as follows :

1. *The publication of freight tariffs*: At a very early period in the history of railroad transportation the fact was developed that railroad companies must frame and publish freight tariffs, presumably in force until a new tariff is published. This was a departure from the practice which had always prevailed upon free highways of commerce, but it was clearly seen to be necessary upon so constrained a commercial highway as the railroad.

The laws of all the states which have legislated upon the subject, and the laws of the United States enacted for the regulation of railroad transportation services, recognize this necessity. The publication of freight tariffs may be regarded as the initial step in the establishment of just and practical railroad regulation, and as a proper restraint upon the freedom of competition. I shall waste no words in the unnecessary attempt to justify it.

2. *Agreements as to competitive rates*: All experience in railroad transportation has clearly proved that agreements as to the rates which shall be charged for competitive traffic are necessary to the orderly and just administration of railroad transportation. The laws of states and of the United States recognize such agreements as in the nature of just and wholesome restraints upon railroad transportation. But this regulation goes directly in the face of the rule of free competition which prevails on free highways of commerce. It would, however, be a waste of words to attempt to prove the propriety of this rule, so generally is it recognized.

3. *The uniform classification of freights*: The same experiences which gave rise to the publication of freight tariffs and agreements as to competitive rates, also led the railroad companies to adopt common classifications of freight upon which related freight tariffs may be formulated. This rule or practice commands general approbation. It is also regarded as a just and beneficent restraint upon the freedom of competition on railroads, although having no place in the conduct of transportation on free highways of commerce. Like the publication of rates, and agreements as to competitive rates, this particular restraint upon the freedom of railroad competition rests upon a generally accepted and firmly established rule of public policy. The interstate commerce commission has even gone so far as to recommend a uniform classification of freights throughout the country. That may come, although it involves rather to much of a levelling process at the present time.

4. *Ample public notice of intended changes in rates*: Experience has clearly proved the commercial importance of such notice. Changes of railroad transportation charges without due public notice tend to demoralize trade. Changes in rates, if announced only to favored shippers, constitute a flagrant and unjust discrimination. But public notice of intended changes in rates are repugnant to the law of unrestrained competition on free highways of commerce. The independent power to change rates from day to day without notice is one of the recognized characteristics of the freedom of competition on such highways. The lessons of experience, however,

have proved both to railroad managers and to the public generally that the restraint of ample public notice of intended changes of railroad rates is not only justifiable, but that it is clearly dictated by sound views of public policy. This particular restraint upon the freedom of competition on railroads first commended itself to the approbation of railroad managers, and it is now a fundamental feature of the interstate commerce act.

Various other self-imposed rules in the nature of regulations in restraint of the absolute freedom of competition on railroads have been instituted by railroad managers, and the lessons of experience, patent to the observation of all the world, not only justify but absolutely demand the imposition of such restraints.

The interstate commerce commission is today devoting its energies, under the general or specific requirements of law, to the enforcement of all those wholesome restraints just mentioned upon railroad competition, and governmental regulation today abandons as utterly impracticable that freedom of competition in transportation by rail which characterizes transportation upon free highways of commerce. Moreover, every observant mind clearly perceives that the specific restraints upon the freedom of railroad transportation hereinbefore considered are based upon the fact that the railroad is not, and in the nature of things can never become, a free highway of commerce.

But all this is simply a recognition of the generally accepted truth that the largest and best results of our complex and refined civilization are the product of restraints. We have liberty only as restrained by law. The discovery and application of wholesome restraints upon human action is in fact the most important requisite of human progress.

The adoption and enforcement of the particular restraints above mentioned upon the freedom of railroad competition, have not, however, proved fully adequate to the abatement of the evils described. Much yet remains to be done in order to secure the harmonious working of the American railroad system. After all the restraints upon railroad transportation already described had been fully established, the general freight agents, or other officers having the management of the freight traffic of rival roads, would from time to time meet together and agree as to the rates which should prevail; but difficulties inherent in the system of railroad transportation frequently rendered null and void all such attempts. It appeared that whenever agreements for the maintenance of rates were entered into there was a mental reservation on the part of the representative of each road that his observance of the agreed rate was conditioned upon the fact that his line was to secure *the share of traffic to which he believed it to be entitled at each competing point*. The result, therefore, was almost invariably that, soon after such agreements were made, the soliciting agents of one or more of the competing lines would have recourse to the cutting of rates, in order to *make up the assumed deficiency in his share of the traffic*. Usually such rate-cutting was based upon representations of shippers, sometimes true and sometimes false, to the effect that offers of cut rates had been made to them by the agents of competing lines. This was a constant source of trouble and demoralization. It was therefore clearly perceived that some new restraint must be adopted in order to preserve the harmonious and beneficent administration of our vast and complex railroad system. The root of the difficulty lay in the fight by each company for a larger share

of the competitive traffic than any other company was willing to grant it. Hence was evolved out of the fierce interaction of forces the new law of self-restraint—agreements as to the share of the competitive traffic which should be carried by each line. This expedient is repelled by independent common carriers in the narrow sphere in which such carriers compete on disassociated free highways of commerce, and for a long time it was repelled by railroad managers as a curtailment of their liberty, but at last it was seen to be a necessary feature of a just and proper administration of the traffic of railroads constituting by their enforced relationships one vast and closely related American railroad system. In a word, it was seen that competition upon such a system of transportation must be placed in a complete harness of self-restraint not applicable to common carriers on turnpikes, canals, and rivers.

The agreement as to the apportionment of traffic is the corollary of the rate agreement, and the former is no more in restraint of competition than is the latter. Both restrain destructive competition, which runs to disorder.

The question as to whether agreements in regard to the share of competitive travel shall or shall not be legalized is, however, one which has been and is today hotly contested. Even men who concede the justice and necessity of the publicity of rates, of ample notice of changes in rates, of the observance of agreements as to rates, and who acknowledge the absolute necessity of printed railroad freight tariffs and freight classifications, deny the justice and the necessity of agreements as to the share of the traffic which shall be awarded to each competitor as the substantial basis upon which the efficacy of all other restraints upon the absolute freedom of competition must depend. The logic of the situation, and the stern lessons of experience, force me to the conviction that these objections to agreements as to the equitable division of competitive traffic constitute a barrier to the progress of the American railroad system and a blight upon its natural and proper evolution. The history of such agreements is, in brief, as follows: After the repeated failures of agreements as to the maintenance of rates, in order to cure the evils incident to these disastrous and almost continuous wars of rates which, as already explained threw the internal commerce of the country into confusion, it was conceded by certain able railroad managers, who had carefully studied the situation and who had acquainted themselves with the philosophy of its teachings, that unless the companies should first agree as to the share of the competitive traffic which each was to secure, agreements as to the maintenance of rates would be useless. It was proved to them that the receipts from competitive traffic under a fair apportionment would exceed the receipts from even a larger share of it which might possibly be secured during a war of rates. It is also a fact attested by the leading commercial bodies of this country, that agreements as to the division of traffic have secured the just and equitable conduct of the railroad transportation interests of the country. Besides, rates reasonably remunerative to the carriers, common to all shippers, and steadily maintained, are found to be infinitely better for the general good of the country than even much lower rates, unjustly discriminating and wildly fluctuating, and which inevitably lead to disorder and the demoralization of trade. This is not theory, nor can it be refuted by theory. It is fact, inculcated by the hard lessons of actual experience.

It was only after much opposition and many infractions of agreements as to the division of traffic that the dissenting companies were forced to the confession that the loss of their independence which such agreements involve constitutes a wholesome restraint upon the freedom of competition. And I believe that the public mind is rapidly coming to the conclusion that such restraint of competition is justified by sound views of public policy drawn from the lessons of a protracted and stern experience. When the people of this country come to realize this important truth, as they certainly will, and to impose upon their representatives in legislative assemblies the duty of conforming the laws of the country to this clearly evolved law of the American railroad system then, and not until then, will that system become an orderly and self-regulated institution.

The experiences already recounted have proved beyond all reasonable doubt that free competition among railroads in the manner and to the extent that it is practiced by common carriers on free highways of commerce is utterly impracticable. Railroad transportation must therefore be subjected to such restraint as the lessons of experience have proved to be just and necessary. I strenuously maintain that the acceptance of this general truth is preliminary to the proper adjustment of the railroads to the public interests.

It is unfortunate that in giving the force of legality to so much which experience had proved to be just and beneficent the legislator should have gone astray in regard to a clearly established law of the American railroad system which had been forced upon railroad managers by the logic of events. I refer to the fact that the fifth section of the interstate commerce act forbids such agreements, and thereby incites the railroads to the violation of every beneficent provision of the statute.

The specious objection is urged to agreements as to the division of traffic, that they are similar to agreements made for the suppression of competition and for establishing monopolies in commercial and industrial pursuits. It appears to be a sufficient answer to such objections to say that combinations of every character which tend to forward the beneficent enterprise of the age are also employed for evil purposes. Knives are instruments of great utility, and their use is not to be proscribed because they are sometimes employed to do murder and to commit suicide.

There are gentlemen in this city and in this section of the country—journalists and men in public life—who have controverted and still stoutly controvert the views just expressed—views which, as government officer and as private citizen, I have been forced to accept as the result of laborious investigation and scrutiny. While I have no doubt whatever as to the absolute sincerity of those gentlemen, and while I entertain the highest respect for their ability to discuss public questions, I am as firmly convinced that they are in error as I am of my own existence; nor can I possibly doubt that, one and all, they will be brought by farther investigation or by the irresistible logic of events to see their error. In this connection it is with great pleasure that I advert to the fact that the Honorable John H. Reagan, president of the railroad commission of Texas, has been brought by his careful investigations and observations as a commissioner to concede that agreements

as to the division of competitive traffic, under proper conditions of regulation, are just and beneficial toward the public interests. This concession illuminates the public records of Mr. Reagan, who, as representative in Congress and as senator of the United States from Texas, threw the full weight of his great influence against the legalization of agreements in regard to the division of competitive traffic.

The cause and, as I firmly believe, the only potential cause of the popular prejudice against the agreements as to the division of competitive traffic has arisen from the fact that to such agreements was applied in the very beginning the inappropriate and offensive appellation of *pooling*.

It is manifest that if agreements as to the apportionment of traffic shall be legalized, they should be guarded by all the provisions of the act to regulate commerce relative to the publication and maintenance of joint rates—provisions which, in the hands of sensible railroad managers, would become efficient instruments of self-government.

ORGANIZED MEASURES FOR SECURING THE ORDERLY CONDUCT OF THE AMERICAN RAILROAD SYSTEM.

No organization of human devisement can exist as a forceful entity in the absence of an intelligent directory. The American railroad system is not a thing which can run alone. Its existence involves conventional agreements and coöperative arrangements for the maintenance of such agreements, touching almost innumerable matters of detail. Hence the federation of the railroads by means of associations of various sorts followed as a necessary step in the processes of that evolution which was to bring them all into practical unity. Certain of these federative organizations are based upon the idea of managing the traffic of great geographical areas, while others take cognizance of great traffic currents. There are also associations which have for their object the management of through cars—*i. e.*, car-service associations; other associations have the management of through tickets, of baggage and baggage checks, etc. There are besides claim associations and local associations of various sorts. These associations constitute the mind or administrative thought of the American railroad system. Their function embraces the classification of freights, freight tariffs, joint rates, traffic facilities, the apportionment of traffic, receipts from traffic, and a thousand matters of detail involved in the administrative management of a great transportation system.

Railroad traffic associations take cognizance of agreements in regard to joint traffic over connecting and coöperative lines, and also of agreements between rival lines in regard to competitive traffic. Such associations besides attend to the enormous work of adjusting joint traffic accounts; that is to say, they are clearing-house establishments.

Thus the law of organic efficiency has been to a very great extent substituted for the law of unrestricted competition. This, of course, has involved a considerable sacrifice of independent corporate power. But when men organize for the accomplishment of any great work they most always surrender something for the purpose of gaining something which eludes disassociated effort.

The thing of chief public interest attained by the federation of the railroads was the maintenance of order in the conduct of the internal

commerce of the country. The time had come when the alternative confronted the people of this country—the maintenance of order or the maintenance of the absolute freedom of competition. Order is not only heaven's first law, but it is a vital condition of all living. Competition, on the other hand, is only a manifestation of living under favoring conditions. And yet much of the reasoning of the present day would place the maintenance of a wild and destructive competition above the maintenance of order. That is a great mistake. When competition becomes so fierce that it degenerates into disorder it passes the acme of its possibilities and becomes the very swoon of existence—the syncope of effort.

With the exception of agreements as to the apportionment of competitive tariff, all the self-imposed restraints upon railroad competition enforced by railroad associations are now fully recognized by the act to regulate commerce, and by the interstate commerce commission as expressions of American common law touching the subject of railroad transportation.

THE REGULATION OF COMPETITION.

The experience of centuries prior to the advent of the railroad had firmly engrafted into the minds of the English-speaking race the rule of public policy known as *the freedom of the highway*. By the freedom of the highway is meant the freedom enjoyed by every man to operate his vehicle of commerce upon free highways in competition with all other carriers.

As the regulation of competition involves a fundamental condition, under which the evolution of the American railway system has proceeded, it appears proper to give to that subject some particular notice in this connection. Although the fact is, and almost from the beginning has been, clearly recognized that the railroad is not, and by virtue of its peculiar physical characteristics can never become, a free highway of commerce, yet many cling tenaciously to the idea that competition must be absolutely unrestrained upon railroads in order to protect the public interests against unjust discriminations and exorbitant rates. Two favorite aphorisms have served to crystallize these ideas in the public mind, viz.: First, that *competition is the life of trade*; and second, that *where combination is possible competition is impossible*. The first of these aphorisms has been proved by the light of modern experiences to be utterly misleading. The spirit of competitive enterprise is undoubtedly a stimulus to action; but under the influences of the telegraph, the railroad, and all the engineery of modern commerce, experience has proved that the stimulus of competition, like every other stimulus, may be so strong as to run to demoralization and disorder. In the proper adjustment of human affairs too much impetus is often found to be as prejudicial to the public welfare as a lack of impetus. This fact is constantly being illustrated in those periods of financial and commercial wreckage and stagnation which follow periods of unduly stimulated activity. It is now perfectly clear that the intense forces of the present day not only justify but absolutely demand the regulating influence of restraint in order to prevent railroad competition from running to disorder, involving the demoralization of trade and the ruin of railroad companies. This is not theory, but the indisputable record of history.

The mischievous fallacy that "competition is the life of trade" was years ago denounced in a learned and elaborate opinion by Judge Howe,* of the supreme court of Wisconsin, in the case of *Kellogg v. Larkin* (3 Pinney Wis. Rep. 150).

"If it be true, also, that competition is the life of trade, it may follow such premises that he who relaxes competition commits an act injurious to trade; and not only so, but he commits an overt act of treason against the commonwealth. But I apprehend it is not true that competition is the life of trade. On the contrary, that maxim is the least reliable of the host which may be picked up in every market-place. It is, in fact, the shibboleth of mere gambling speculation, and is hardly entitled to take rank as an axiom in the jurisprudence of the country. I believe universal observation will attest that for the last quarter of a century competition in trade has caused more individual distress, if not more public injury, than the want of competition."

This misleading aphorism, "Competition is the life of trade," is refuted by every labor organization and every trade organization in restraint of destructive competition—organizations which stand for the protection of labor and for the protection of commerce.

The second aphorism above quoted, "*Where combination is possible competition is impossible*," is also thoroughly exploded. Combination is the most pronounced symptom of our refined and highly organized civilization. By it the largest results in science, in art, in trade, in transportation and in education are being evoked. A prevailing fault of the present day is the failure to discriminate between combinations for good and combinations for evil—between combinations which protect legitimate competition and promote progress, and combinations which stifle competition and arrest progress. Experience also clearly proves that the American railroad system, that vast combination which is neither the result of legislative nor of railroad corporate devisement, but the manifest outcome of an evolution beyond all human prescience, is a combination thoroughly beneficent and regulative of evils, and in the most complete sense promotive of the public interests. This is so clear to the comprehension of every intelligent observer that any attempt to prove it would be the merest superfluity of speech.

In the face of all these lessons of experience and of sound reason as to the necessity of restraint upon the absolute freedom of railroad transportation, the progress of reform has been from the beginning and is today impeded by a persistent adherence to the idea of the absolute freedom of competition among railroads. But state and national railroad regulation stand as a public protest against such views, and all experience clearly proves that if the various restraints which are now imposed upon the absolute freedom of railroad transportation were to be suddenly abandoned the commerce of the country would be thrown into the direst confusion.

Notwithstanding the faith reposed by the present and by past generations in the efficacy of competition, the doctrine has prevailed for nearly two centuries, as an element of English law, that competition is and ought to be subject to just and wholesome restraints.

In the case of *Mitchell v. Reynolds*, decided about the year 1711,

*Afterwards Senator Howe, of Wisconsin.

and reported in "Smith's Leading Cases," the policy of the law of England at that time is stated as follows:

"The present doctrine is that while contracts in total restraint of trade are void, yet if the restraints imposed be partial, reasonable and founded on good consideration, they are valid and will be enforced."

This doctrine has been time and again asserted judicially in this country, and it has become a thoroughly fixed principle of American law.

GOVERNMENTAL REGULATION OF THE RAILROADS.

It was impossible that such a mighty evolution of commercial and transportation interests as that already described could have taken place in this land of liberty, regulated by law, without giving rise to some manifestations of governmental power. It became necessary not only to impose restraints upon evils but also to give legal effect to practices and usages established through the interaction of forces and proved by the lessons of experience to be beneficial and necessary. The political solution of the so-called "railroad problem" has for a generation harassed the legislative and the judicial mind of this country. Many carefully wrought-out plans and expedients for correcting real and supposed evils have been devised, a large proportion of which plans have resulted in failure. But under all the difficulties which surround the task that is not a strange thing. As the explorer approaches the harbor of a strange coast, he finds where the channel is by running into shallow water.

As this paper treats of the railroads only from a national point of view, reference to governmental regulation must be confined to national legislation.

All that there is in the interstate commerce act of February 4, 1889, in the nature of beneficent regulation is based either upon common law requirements applicable to the railroad or upon usages proved to be wholesome and proper in the course of the evolution of the American railroad system. The provisions of the statute which relate to the prohibition of unreasonable rates and unjust discriminations are simply re-enactments of time-honored rules of the common law. The provisions which relate to securing shipments on direct and most convenient lines were already in force as rules of railroad associations. The propriety of this latter rule of conduct was clearly enunciated as long ago as the year 1874, in the report of the investigating committee appointed by the Pennsylvania railroad company. That report clearly announced the doctrine that railroad companies recognize their true interest in furnishing ample facilities, and by refraining from unwise efforts to defeat the interests of the shipper in the matter of attempting to dictate the route or destination of traffic, that being determined mainly by elements other than the way of carriage.

The provisions of the sixth section of the interstate commerce act, relating to joint rates, the maintenance of agreed rates, the publication of rates, and ample notice of intended changes in rates, were, prior to the enactment cardinal features of the regulations established by railroad associations. It was also the fundamental object of such associations to prevent all forms of rate-cutting now forbidden by the interstate commerce act. Outside of these wholesome regulations by the

provisions of the act to regulate commerce may be described as quasi-judicial and, in a qualified sense, administrative.

COMMERCIAL ENVIRONMENT OF THE AMERICAN RAILROAD SYSTEM.

It is impossible to arrive at a clear view of that interaction of forces whereby the American railroad system has been evolved without at least some brief reference to the influences which have been exerted by the commercial forces of the country. This wonderful system of transportation brought every centre of trade and of industry into close competition, and also provided a means whereby the product of every farm and every mine may be speedily placed at the gates of commerce. The joint traffic arrangements entered into among railroad companies had corresponding commercial expressions in through bills of lading and other commercial arrangements, associating transportation in vitally important particulars with trade and with the finance of commerce. All this, in connection with the facilities for commercial intelligence afforded by the telegraph and the public press, has both directly and indirectly created a competition of commercial forces, the intensity and coercive force of which has never before experienced on this planet. The tendency of this far reaching and instant competition has been irresistibly toward a parity of values and toward a constant reduction in prices. This has reacted upon the railroads as an absolute limitation upon rate-making which no traffic manager can resist. For example, if the price of wheat in Chicago is ninety cents and in New York one dollar and ten cents a bushel, the cost of transportation must be somewhat less than twenty cents in order to insure the movement of wheat.

There is no popular fallacy more misleading than the assumption that the railroad managers of the country exercise a very wide range of discretion in the matter of rate-making. In spite of every expedient adopted by the companies to keep rates up, they have fallen, while traffic has increased. This is illustrated by the fact that the average charge per ton per mile on eighteen of the principal railroads of the country fell from 2.101 cents in 1872 to .868 in 1891, a decrease of 60 per cent, while the tonnage carried more than doubled during that period. When the Windom senate committee on "transportation routes to the seaboard" began its work in the year 1873, the average all-rail rate for the transportation of wheat from Chicago to New York was 33.5 cents a bushel, but during the year 1892 it was only 14.23 cents a bushel. That committee devoted its attention particularly to the possibilities of cheap transportation by water. In the year 1872 the average total charge for transporting a bushel of wheat from Chicago to New York city by lake and canal was 24.47 cents a bushel. The committee concluded that if the cost of transporting wheat from Chicago to New York by water could be reduced to about 18 cents per bushel cheap transportation would be fully secured independently of railroad transportation. But during the year 1892 the total charge for transporting wheat from Chicago to New York by lake and canal was reduced to 5.61 cents per bushel, and, as before stated, the average rail rate was reduced to 14.23 cents. Such reduction in the rates charged on railroads have been very largely the result of the competition of commercial forces operative through rival transportation lines. The reduction of freight charges between the west and the Atlantic seaboard is also, as we all know, due very largely

to the marvelous reduction in the cost of transportation by lake, Erie canal and Hudson river. This has been affected in part by the generous policy adopted by the State of New York in making the canals of that state free of tolls by imposing a tax of over nine hundred thousand dollars a year upon the people of that great state. The railroad companies have been able to live under such constraint upon them only by physical improvements in the construction of railroads and their equipment, and by labor-saving devices and other economies introduced in the operation of railroads.

The influence which commercial forces necessarily exert upon transportation charges may also be inferred from the fact that the value of goods transported on railroads each year is about three times the value of all the railroad properties of the country and at least thirty times the total railroad receipts each year from freight traffic. From these facts it is evident that the commercial forces of the country exert a preponderating influence not only over rates but also over the movement of traffic. In a word, the course of the internal commerce of the country is today mainly determined by commercial forces. The interaction of these forces is manifest in the fierce struggle of rival cities and of rival productive areas—in the competition of soil with soil, of mine with mine, and of industry with industry. Then descending to the detail of railroad traffic there is the struggle of individual shippers, chiefly the larger shippers, to secure unjustly discriminating rates in their own favor, while at the same time the competition of rival railroads through their complex arrangements of soliciting agencies and the practical abrogating of the central rate-making power has had a tendency to render the whole subject of making and maintaining just and equitable rates absolutely impossible in the absence of wholesome and just restraints upon the evils already described.

THE AMERICAN RAILROAD SYSTEM—ITS GENESIS AND EVOLUTION.

Thus far attention has been directed to the extension of railroads in the United States, the vast and varied commercial and industrial interests which it has been the means of creating, and the evils which have been encountered, and in a great degree overcome, in adjusting this potential agency of transportation to the commercial, industrial, social, and political interests of the country. This grand achievement, however, is mainly the result of an evolution, unobserved in its processes until recognized in its splendid consummation,—the American railroad system.

Thirty-five years ago the railroads of the United States were operated as separate and independent highways of commerce. A dozen different track gauges were in use. Besides, the bare idea of connecting the tracks of different companies having a terminus in the same town was repelled by railroad managers as something in the nature of an entangling alliance, fraught with complications and administrative difficulties which had better be avoided. The drayman and the forwarding merchant also asserted their right to live, and in favoring the transfer of freights the railroad companies had respect for such opposition. Different gauges were adopted in many instances for the express purpose of preventing "the carriage of freights from being, and being treated as, one continuous carriage from place of shipment to the place

of destination," a practice now treated by the interstate commerce act as a public offence (see section 7). One of the latest and perhaps most notable instances of the policy of breaking gauge for the specific purpose of securing to a city the commercial advantages which that expedient was supposed to afford was that of the Cincinnati Southern railroad, an important line, 336 miles in length, built by the city of Cincinnati, and completed about the year 1880. The cars of different companies were also so differently constructed as not to be easily hauled together in trains.

But the social, commercial, postal, and military necessities of the age rapidly brushed aside all obstacles to the formation of that great system of railroad transportation which is today unto the traveller and the shipper as one instrumentality of transportation, embracing nearly 200,000 miles of track, administered and operated as though by one central authority. This wonderful organic development has involved connected tracks, a common track gauge, union depots, through rates, the uniform classification of commodities, rate agreements, prorating, through tickets, related time schedules, the unimpeded passage of freight, passenger, express, and postal cars and locomotives over the tracks of different companies, and to a considerable extent the employment of operatives in the pay of one company upon the lines of other companies. Each company has also become, in ten thousand instances, the agent of many other companies for the sale of tickets, the collection of freight moneys, and the procurement of traffic. The movement in favor of a common automatic car-coupler, of which movement Hon. Edward A. Moseley, secretary of the interstate commerce commission, has been the most conspicuous proponent and advocate, was suggested and has been carried to a point at which success seems to be assured, by none other than humane purposes toward railroad employes; but this common interlocking connection between freight cars is exerting an important influence toward securing the perfect physical unity of the American railroad system.

The practical unification of the great work of transportation by rail has come about not advisedly, or as the result of design or forecast on the part of the companies, but as the outcome of an evolution. Obstacles to the union of lines and the correlation of traffic interests which at first appeared insuperable have been swept aside by an imperious force of circumstances. Moreover, every effective measure of restraint and every instrumentality which has advanced the efficiency of the railroad as an instrument of commerce seems by an imperious law of development to have tended toward the evolution of the American railroad system.

During this entire period of progress railroad managers have been divided into two schools in regard to the new development. For years a majority opposed, and a minority favored it. Some of the stronger companies attempted to resist the movement by the consolidation and extension of their lines, assuming that thus they might be enabled to remain a law unto themselves. But in time they too were forced to acknowledge the compulsions of the interdependent relationships which were slowly but surely evolving one vast national railroad system. The peculiar environment of each road, of course, had much to do with the detail of forming connections with coterminous roads. But above

every conceivable objection, and every possible obstruction, there arose an imperious commercial and social demand for a united American railroad service. Upon the outbreak of the late war, which was to determine the question of maintaining our national unity, military necessity demanded through cars and through trains over the lines of different companies. The tracks of railroads having terminals on opposite sides of cities were accordingly connected by lines constructed through or around such cities in order that men and munitions of war might pass unimpeded. The military demand for an expedited postal service also gave rise to the railway post-office, by which means the work of assorting and distributing the mails is now done chiefly on trains in motion. Then the sleeping-car came in vogue, with a rapidly developed and imperative demand for connected tracks and through service over the lines of two, three, and four or more different companies. It was in vain that conservative railroad men protested against the loss of independence and the inconveniences and vexations incident to forced partnerships with companies and with railroad officials whom they would gladly have shunned. The most serious difficulties arose in the establishment of a through or interchangeable freight-car service. Sometimes cars, when thus employed, far from the road upon which they belonged, were left standing for days and even weeks on side tracks or kept in use without any authority or compensation for such service. In many instances cars were thus lost, and in certain cases actually stolen by being repainted with the name of the appropriating company substituted for that of the company to which they belonged. But despite all these inconveniences the efforts to prevent a common use of freight cars was futile. In time the evils just alluded to were in a large degree overcome by car-service agents of the various railroad associations and through the more recently formed car-service associations.

In treating of a united American railroad system, I cannot fail to make special mention of the inestimable service performed by the car-service associations of the United States. The first association of this sort was organized October 1, 1887, at Omaha, Nebraska, by Mr. E. Dickinson, general manager of the Union Pacific railway company, Mr. G. W. Holdridge, general manager of the Burlington & Missouri River railroad, and Mr. J. M. Eddy, superintendent of the Missouri Pacific railway. Mr. E. E. Hill was the first car-service manager. From this beginning there have sprung thirty-nine car-service associations, whose field of operations embraces almost the entire country. The common rule of these associations is to allow a car to stand 48 hours for loading and unloading, and after that to charge for car service at the rate of one dollar a day. The results attained by these associations is indicated by the fact that prior to their organization the detention of cars amounted to 5.85 days for each car handled, whereas since their organization the detention has been only 1.45 days—a saving at each loading and unloading of 4.40 days. As the total number of cars handled during the year 1892 was 11,108,487, the total number of car-days service saved was 48,877,342, which at \$1.50 a day amounts to \$73,316,013. Besides this large saving to the companies, they are enabled to give the public better service, and of course also to afford a cheaper service. The courts, recognizing the fact that "the life of the railroads is in the rolling stock," have fully and completely recognized the legal force of the

rules and regulations made by car-service associations. Perhaps there is no other feature of the coöperative relationships which have sprung up among the railroads of the country which so strikingly illustrates the organic unity of the American railroad system as the work performed by car-service associations.

There is another important organization whose work has constituted an important feature of the evolution of the American railroad system. I refer to the American railway association, of which Mr. H. S. Haines, of New York, is now and has been president since the year 1887. This association includes in its membership all the principal railroad companies of the country. Its object is the development and solution of problems connected with railroad management in the United States. It is a deliberative body without any executive authority, and endowed only with the function of recommending the adoption of its conclusions. But its influence and power for good has been very great, and all its work has tended toward a more thorough and beneficent organization of the American railroad system.

These associations and other coöperative arrangements did not spring out of the ground. They are the result of the careful investigation and strenuous effort of brainy men whose lives have been controlled by the best and most forceful inspirations of human progress.

Finally, in the face of untold opposition and frictional resistances, the American railroad system emerged in its present form and magnificent potentialities for good.

The social, commercial, industrial, and political forces of the country have beckoned the companies on to this unity of transportation facilities, as absolute and as imperative in its manifestations as is the political unity which binds towns, counties, and states into a nation which is one and indivisible. State governments also have extended solicitous invitations to railroad companies to construct their lines across state boundaries in order to form such connections, and in so doing to exercise freely one of the most sacred attributes of governmental sovereignty—the right of eminent domain.

Twenty-seven years ago a consensus of the social, political and commercial forces of the country led to a statutory enactment by the national government which legalized the physical combination of railroad interests just described. I refer to the act of Congress approved June 15, 1866. This statute, the most important concerning the internal commerce of the United States which has ever been enacted by Congress, was simply a legal recognition of something even then existent as an organic characteristic of the transportation and commercial interests of the country. In a word, it was nothing more nor less than the statutory approval of an institution and of usages which had become expressions of the commercial and social life of the nation. The act in question reads as follows:

"An act to facilitate commercial, postal, and military communication among the states.

"Whereas the Constitution of the United States confers upon Congress, in express terms, the power to regulate commerce among the several states, to establish post-roads and to raise and support armies; therefore,

"Be it enacted by the Senate and House of Representatives of the

United States in Congress assembled, That every railroad company in the United States whose road is operated by steam, its successors and assigns, be, and is hereby authorized to carry upon and over its road, boats, bridges, and ferries all passengers, troops, government supplies, mails, freight, and property on their way from any state to another state, and to receive compensation therefor, and to connect with roads of other states, so as to form continuous lines for the transportation of the same to the place of its destination.

* * * * *

"SECTION 2. *And be it further enacted*, That Congress may at any time alter, amend, or repeal this act."

This act of Congress fully and explicitly authorizes all the railroad combinations and coöperative arrangements which I have just described. In form and substance it is permissive and clearly in the nature of a grant of power. It also expresses an implied contract, viz., a duty to be performed in consideration of a privilege granted. Therefore it may be properly regarded as *The charter of the American railroad system*.

That it had this significance in the minds of its framers is clearly indicated by the fact that out of abundant caution it was provided in the second section "that Congress may at any time alter, amend, or repeal this act." This latter provision was apparently prompted by a fear, even then entertained by many, that such intimate combinations among the railroads might, in the course of their development, prove detrimental to the public interests. That apprehension, however, no longer has place in the minds of the American people.

But the American railroad system has a higher charter even than this statutory enactment, and that is the very charter of government itself—the will of the people, for this act formulates at once the public needs and the public sense of what is necessary and proper concerning railroad transportation in this country.

The beneficent character of the act of June 15, 1866, has been abundantly demonstrated by the lessons of experience, and there is today no purpose more firmly fixed in the minds of the American people than that our internal commerce shall have free and uninterrupted passage. And it is a source of national pride that today the railroads of the country do present themselves to the traveler and the shipper practically as one vast system of transportation, peerless in magnitude and efficiency.

The growing conviction in the public mind as to what is right and necessary regarding the American railroad system has found vigorous expression in provisions of the interstate commerce act of February 4, 1887. This act is from beginning to ending based upon the idea of an existent American railroad system, its needs and possibilities. Although the legislator may not have had clearly in mind this particular significance of the statute, such inadvertence illustrates the fact that in the processes of an evolution men usually build better than they know. That the interstate commerce act was based upon the conditions imposed by the law of the American railroad system is clearly indicated by sections 3, 7 and 10 of that act, which, stripped of legal amplification, are as follows:

A (Sec. 3). *Facilities for interchange of traffic*. Every common car-

rier shall afford all reasonable, proper and equal facilities for the interchange of traffic between their respective lines and those connecting therewith.

B (Sec. 7). *Continuous carriage.* It shall be unlawful for any common carrier subject to the provisions of this act to enter into any combination, contract or agreement, expressed or implied, to prevent the carriage of freights from being continuous from the place of shipment to the place of destination.

C (Sec. 10). *Penalties for violation.* Any common carrier subject to the provisions of this act, or any director or officer thereof, or any receiver, trustee, lessee, agent, or person employed by such corporation, who alone or with any other corporation, company, person or party shall wilfully do or cause to be done anything in this act prohibited, or who shall wilfully omit to do anything in this act required to be done, shall, upon conviction thereof, be subject to a fine of not to exceed five thousand dollars.

These provisions of the interstate commerce act clearly define certain commercial objects which the charter of the American railroad system of June 15, 1866, was intended to secure, and they simply formulate and give the sanction of law to the already evolved law of that system.

When "The Act to Regulate Commerce," commonly known as "The Interstate Commerce Act," took effect, July 5, 1887, the constitutional power conferred upon Congress of regulating "commerce among the states" had been practically dormant for a period of 98 years. Prior to the enactment of that statute the American railway system had been evolved, and it had become the grandest system of transportation ever seen on this globe in point of speedy carriage, the facilities afforded for the distribution of freights, regularity of movement, safety, cost of transportation, and general efficiency. The practical duty now devolving upon the legislator in devising a general scheme of railroad legislation is that of building up a body of statute law, based upon and voicing the tendencies, the needs and the possibilities of the evolved law of the American railroad system. The interstate commerce act inaugurated such legislation.

By the lessons of a hard experience, involving the consideration of many an asserted "solution of the whole question," we have come to recognize in the American railroad system a fresh illustration of that cardinal principle of free government, that the evolutionary experiences of human society furnish the surest foundation of beneficent law and of good government. Hence it appears that the chief duty of the railroad manager, of the student of our transportation interests, and of the American legislator, in all attempts to advance the efficiency of the American railroad system and to conform it to the public needs, is to study the course of its evolution, and, if possible, to catch the drift of its best tendencies. This, in the very nature of things, must always be a tentative work. Disappointment may overwhelm many a sincere effort, for every investigation and every sincere effort at reform is always more or less in the nature of groping one's way out of the darkness into the light. So the work must go on, and it will probably be realized fifty years hence by men engaged in such practical studies as those which now command our thoughts that "there is a divinity which shapes our

ends," and that unless men "build better than they know they will build in vain." And I doubt not that the most effective workers in the great task of adjusting the railroads to the public interests will be found to be among those who, in the language of Mr. Gladstone, have "learned to submit themselves to the lessons of experience and to the lessons of the hour."

THE INFLUENCE OF RAILWAYS ON THE SETTLEMENT AND DEVELOPMENT OF NEW COUNTRIES.

GEORGE P. NEELE, SUPERINTENDENT OF THE LINE, LONDON & NORTHWESTERN RAILWAY, LONDON, ENGLAND.

As the whole of my time as a railway officer has been devoted to work in the old country, and in settled populous parts of the old country, I must plead entire ignorance of any practical personal knowledge of the subject so kindly but unaccountably allotted to me. So far as railways are concerned perhaps even England may be considered a new country, for the jubilee of the opening of the first line of passenger railway has but recently been celebrated, and a glance at the maps of railways in 1848 and in 1893 will show to what an extent the growth has taken place.

You railway gentlemen of America will see at once how little new country there is here for any progressive Alexander to conquer. The country is gridironed with railways, and in the eye of the railway superintendent all these diagrams are instinct with movement, on each of them moment by moment a constant current of locomotive energy is at work—here an express clearing its 50 to 60 miles an hour, there a stopping passenger train, here a rival express tearing on its rampant course, there a series of goods and freight trains, mineral trains, fish trains, cattle trains, workmen's trains, ballast trains, season ticketholder's trains, excursion trains, mail trains, parcel trains. Each town on the map contributes its contingent, every dockyard pours out its traffic, every mine and quarry, every mill, every factory adds its quota to the unceasing stream, day by day the torrent rolls on and night by night exhibits well-nigh an equal flow.

The nearest analogy I can suggest may be found in watching by microscopic aid the blood circulation in the distended foot of a frog, a sight which occasionally is afforded as a contribution towards an evening's entertainment; the constant flow of globules along the arteries and veins represents the continued movement of the various trains along the wonderful ramifications and ganglions of railway tracks represented by the map of railways.

With such a frequent and unintermitting flow of traffic it has been my fortune to stand connected. Originally for all traffic north of London the terminus of "Euston" was sufficient; alike to York, to Derby, to Birmingham, to Liverpool, Manchester and Scotland, "Euston" was

the point of departure. Rapidly the thirst for railway extension rendered such a state of things impossible ; on the right hand and on the left new systems of railways sprung up, competition was hailed by public acclaim, and towns which at first had disliked the approach of railways had endeavored to stop their access to their borders, had forced the lines to adopt remote locations instead of central positions for their city stations, now pursued an entirely different course of action. Parliament granted to any combination of shareholders the right to make lines which had the slightest pretense to occupy a business sphere, and thus most of the large towns in the United Kingdom have two or three or more companies ready and willing to place their accommodation at the service of the trading community with a result that the record of growth in these busy islands is simply phenomenal.

Reviewing the policy adopted by the companies holding the direct routes between the metropolis and large business centers, in widening and doubling their existing lines to meet the growth of traffic, it is very doubtful whether the wiser course would not have been the selection of a different route (even at the slight lengthening of mileage) accommodating towns and villages lying east or west of the original line and thus occupying the territory adjacent to their system and guarding against the encroachment of opposing lines ; instances are present to my mind in which even experts in prospecting through such districts—shall I call them "new countries"—have reported that the lands "would not support a goose an acre,"—and yet rival companies taking possession and extending facilities to the scattered or rural population have succeeded in establishing remunerative traffic throughout the despised territory, and a permanent competition has been set up to the disadvantage of the older railway system. Such a successful result does not, however, always ensue, and in many instances side lines worked by small independent companies linger out a miserable, impecunious existence, grumbled at by the residents, held up to injurious comparison with more prosperous neighbors, and ultimately falling into the possession of the larger companies, at a serious sacrifice on the part of the original financiers.

It is not a little curious how in this country the lines of railway have followed the course adopted by the lines of roads laid down by the Roman conquerors. One of the most marked records of the domination of the Roman empire is in the trace of roadways throughout the territories they subdued. Some of these in England subsist to the present day. The "Watling Street" stretching from Dover through London to the fastnesses of Wales is a case in point. Their camps (*castra*) became developed in many instances into important towns, such names as Chester, Lancaster, Manchester, Leicester, Rochester, Winchester, Towcester, and many others that might be mentioned, testify to this as their origin. The railways have followed the course of these Roman roads, and thus routes laid down in the first instance for purposes of war have developed into the highways of peaceful commerce.

A similar genesis may be claimed for some of the lines existing in our Indian possessions and at the Cape. In years gone by when troubles existed in the south of Africa, the late Duke of Wellington showed the advantage of the old Roman policy, and urged the construction of main roads through the country ; today the formation of railroads would be

substituted and the movement of troops accelerated in the most marked degree. As a case in point I may add that at the present time the construction of a line of railway from the eastern coast of Africa to a central point in Uganda, alike to protect our interest and to counteract the slave trade, is in contemplation; a bold policy would carry out the scheme to a successful issue and both security of possession and a new source of trade would certainly result.

While referring thus to the lines which have a military or strategic origin, I am glad to say that very few of the lines for which British capital has found the money have had such a commencement, by far the larger portion have originated in the development of commerce. The trade of the various dependencies has found its way of old to the ports by slow and old-fashioned modes of conveyance; the mule track—the river canoe—the barge—the caravan—the lumber slide—have had to give way to the advance of steam, and at every port of any importance railways have been constructed to points in the interior, whence the conveyance of products has been simplified, and the volume of traffic increased in a marvelous degree.

What the effects of the construction of those railways into the interior may have been, it is impossible to enumerate. Some people taking a pessimist view will say that guns, gunpowder, and ardent spirits conveyed by traders to natives and to settlers is the net result, with an inevitable diminution in the number of the original inhabitants, but I would rather view the result of the trading activity developed by steam alike by sea and by land as the great factor in the increment of the world's wealth, the world's progression, the world's activity, the world's knowledge. Wherever the railway has gone it has been accompanied by the telegraph, and its concomitant advantages:—Landing places have grown into ports, ports into harbors, and harbors have developed wharves, warehouses and docks; shipbuilding has sprung up, lighthouses have been established along the frequented coasts, settlements have grown from villages to important towns, employment has been found for a vastly increased population, clothing has become acclimatised and substituted for beads and shells, "fair nature's self adorning." House building has replaced the squalor of native residences.

An encyclopedia would be requisite to give the enumeration of the various businesses which railways have developed in these new countries. If, as the proverb states, a man is a benefactor to his species who makes "two blades of grass grow where one only existed before," what must be the extent of benefits conferred by railways in these countries? Consider for a moment the extent of employment afforded by the development of such businesses as wine, cotton, silk, sugar, wool, coal, tea, jute, wheat, oil, cattle, alkali, ore, fruit; the catalogue is endless, *employment* is found for teeming masses, wages follow work, and the germ of prosperity for town and country lies in the union of work and thrift.

It was a saying of one of the older engineers in this country—a man with an overweening sense of his success in construction of canals—that in his view the use of rivers was "to feed navigable canals." It is, I think, to the action of rivers that the modern engineers are indebted for the location of railways through otherwise impracticable mountain

barriers. The waterway has in past ages little by little won its passage through the rocky stratifications, and left marvelous cañons and ravines indicating to the enterprising engineer how most easily to penetrate the obstruction, and at what altitude to commence the inevitable tunnel. Here, again, comes in the element of employment, and the settlement of families, and the discreet accumulations of thrifty men. Towns are thus located in places otherwise inaccessible, and the well-earned increment of property develops a new prosperity. In the noisy troops of urchins that crowd around the opening of a new line one may see the future school trip traffic, the future excursionists, the future operatives and artisans whose earnings will reach the coffers of the railway bureau for many a busy season.

Knowing how little personal information I could give upon the subject allotted to me, I have ventured to ask Mr. Eddy (for some years my assistant) who now holds the distinguished post of chief commissioner of railways in New South Wales to forward to Mr. Blanchard a copy of his last annual report upon the railways in that province, which, when it comes to hand, will give a practical illustration of the effect of railway enterprise in a new country; and in order that my paper in response to your kind invitation might not be absolutely valueless I have asked two officers of my railway circle of acquaintance for their views. In reply the one Mr. Livesey, sometime manager of the narrow gauge railways of North Wales situate in a somewhat wild portion of the state districts of Carnarvonshire, and more recently manager of the Donegal railway in the north of Ireland, writes as follows:

"Now for your queries. I noticed in North Wales, and I observe the same thing is taking place here, that the residents are brightening up the appearance of their houses and their *persons*. Houses that have answered the purpose for several generations, are now either being rebuilt or discarded for those of more modern pretensions, instead of the mere hovels they have been accustomed to all their lives. I can only conclude it is owing to the railways enabling them to see more of the outside world, and which opens their eyes to their own condition as compared with that of others who have had the benefit of railway communication for any length of time, and shows up their own shortcomings. I have also observed railways create *rivalry*, not only in business, but in such matters as the improvement of the small towns and villages, as for instance the water supply, lighting streets, etc., in places where such things were never thought of prior to the advent of the railways.

"Quite recently in this part one small town just served by our line, went in for lighting the streets with the result that several other places directly they saw the improvement it was, must have the same, and now they are agitating for water to be laid on to the streets, instead of getting it as best they could heretofore. All this leads to 'the development of commerce.' There can be no question, I think, without railways the people would have ever remained in their abject condition, but these (railways) seem to have *shamed* them into doing something to mend matters."

The other gentleman—Mr. Morison, the manager of the Algeciras (Gibraltar) railway in Spain—has taken considerable interest in the subject and I have pleasure in attaching his reply.

And now I can only reiterate my regret that my contribution to your

session should be so trite and commonplace ; the thought constantly recurring to my mind is that the task is so manifestly one for which an American and not an English railway officer should have been selected ; it is to an extent in Canada but to an overpowering degree in the United States that the benefits of railway extension are so manifest—in no portion of the globe it is possible to discover a development of railroad approaching to that of America ; great as the growth of railways has been in England (the original birthplace of the system) the mileage totals of the states equals, I believe, that of all other countries in the world put together ! Yet in 1850 Illinois had but two short lines in its borders (one near Chicago) ; Minnesota, Iowa, *and the whole of the country to the west was totally devoid of railway facilities* ; a glance at the map will show that a new world has since been developed almost entirely owing to railroads. The country from ocean to ocean is crossed and recrossed by grand and rival routes penetrating mountain fastnesses ; spanning gigantic rivers ; villages, towns, cities, states, springing into existence on the courses opened out by the iron pathway—well may the railway congress in Chicago be proud of such results !

RAILWAYS OF FOREIGN COUNTRIES.

INFLUENCE OF RAILWAYS IN SPAIN.

JOHN MORRISON, GENERAL MANAGER FERROCARRIL DE BOBADILLA A
ALGECIRAS : ALGECIRAS, SPAIN.

Spain, which was at one time looked upon as the first, the strongest and the most advanced nation in Europe, cannot by any means be called a new country, in the ordinary sense of the word, but as regards railways it is perhaps newer than any other civilized kingdom in the world, certainly more so than any other European country. And to no other nation in Christendom does the United States of America owe more ; for was it not Spain who commissioned and sent out the little fleet of vessels which enabled Christopher Columbus, the discoverer of America—though not the actual founder of the republic—to hit upon an unknown continent, which was destined, under the guiding and managing hand and brain of some of England, Scotland and Ireland's sons and daughters, to rise to such eminence and power ? The history then of the introduction and growth of the railway system in Spain together with such enormous benefits as this modern civilizer and reformer can bestow, cannot be anything else than pleasant reading to all well-meant and friendly Americans.

Spain, which for ages had stood aloof in the matter of railways, had at last caught the infection of progress which was hurrying on her

neighbors. and towards the end of the last century, inaugurated her railway era, which has since so revolutionized her education and her commerce, and opened up her grand and picturesque mountain passes to the iron horse. Between 1848 and 1858 the construction of the first 500 miles of railway in Spain had become an accomplished fact, and so far the horn of the young postilion, guiding the old cumbersome "diligencia," on its way through streets, alleys and country roads, had given way to the shrill whistle of the locomotive. From 1857 to 1869 something like 2800 miles were opened to the public, and undoubtedly these stretches of railway lines accelerated the revolution of 1868, and contributed to the upheaval which broke the solid crust which time and habit had drawn over the inhabitants of the peninsula.

The first seventeen miles of railway was put under traffic in 1848, and there can be no doubt that the progress of the country since then is due in a great measure to the origin and extension of the railway system. On the 1st January, 1883, the total mileage was 4865 miles, which by the 1st January, 1888, had increased to 8607 miles, and is still increasing in a remarkable degree. At first the construction of railways in Spain had been the outcome of French and Belgium capital; then came the Germans to the rescue, and England who had taken such a noble and leading part in railway enterprise in other parts of the world seemed to have brought up the rear. Many of these lines were aided materially by a subvention from the government, in consideration of which the railways so assisted will become government property after the lapse of ninety-nine years. Meantime these railways have to carry all the mails free, as well as some of the military forces of the country; other officials and servants have to be accommodated at either half or quarter fares, and as if all this were not sufficient recompense for the limited subsidy allowed, each line aided by the state in construction has to pay 15 per cent tax on the gross receipts from passengers and 3 per cent on the gross merchandise revenue. Notwithstanding all these services, rendered either entirely or partially free, and the high tax imposed, railways are growing more and more numerous, and foreign capital keeps pouring into the country still. It is recorded that up to 1882 the Spanish government had spent nearly £25,000,000 in the shape of subventions to railways, and this would never have been done but for the certainty that the best, surest and quickest way of developing the enormous resources of the country, that had so long lain unproductive and practically dormant, was by means of railway communication.

As proof of the great influence the inauguration and extension of railways had upon the trade and commerce of the country we give below a comparative table showing the imports and exports for the years ended 1862 and the twenty years ended 1882:

From 1852 to 1862	
the imports were worth	£ 7,531,671
and the exports	5,667,834
Making a grand total of	£13,199,505
In 1862 the value of imports was	£16,793,127
and exports were worth	11,105,322
Making a grand total of	£27,898,449
From 1862 to 1882	
the imports were worth	£32,666,676
and the exports	30,615,043
Making the grand total in 20 years of	£63,281,719

This was a most remarkable growth in any case, but when we take into account the fact that during all these years Spain had been suffering from internal commotions which seldom fall to the lot of civilized nations, the development is still more wonderful.

The copper from Tharsis, the iron from Rio-Tinto and Bilbao, etc., the coal from Belmez and the lead and silver from Linares, and minerals from many other places which we will not stop to mention, are all the outcome of railway facilities. Before the advent of the railway these rich, plentiful and valuable resources lay for the most part undisturbed in the bowels of the earth, and the fruits and wines so common to Spain were in olden times produced chiefly for home consumption. One noteworthy feature due to railway enterprise is the steady increase in the trade of the country notwithstanding the political disadvantages under which she labors.

The latest addition to the iron roads of Spain is certainly not the least important. We refer to the Algeciras (Gibraltar) & Bobadilla railway, which opens up a track of country of unparalleled scenery and various resources. This new line forms the last link in the overland route between England and her colony and stronghold of Gibraltar, and besides connects Spain and Morocco in a way unheard of before. Already the tourist from New York, Chicago and other parts of America who disembarks in Gibraltar, from either the North German Lloyd or the Hamburg-American Steampacket company's steamers, has found this new line a great boon. By means of it he finds himself able to leave the "Old Rock" at pleasure, and speed his way to Ronda, Granada, Cordoba, Sevilla, Madrid, Paris or the Riviera, as the case may be, and come back again the same way, if so inclined, to join his steamer on his return to his home and his country. Within the few short months that this latest addition to the railway system of Spain has been open to the public the value of land and house property have gone up, and Algeciras, the sea-coast terminus—opposite Gibraltar—is rapidly rising in importance. The country traversed by this new road gives every indication of possessing rich deposits of minerals, especially iron ore, gas coal and shale, but so far nothing has been done in the way of turning these resources to account. Now, however, the advantage of having direct railway communication from the seats of this hidden wealth to the seacoast will give an impetus to mining, and within the next few years it will be found that the same prosperity and advancement which have followed in the wake of railways in other parts of Spain will immediately begin to dawn on this district as well and eventually result in producing wealth and happiness in places which had for so long been in a state of inactivity and stagnation.

Among other benefits which this great civilizer brings in its train is that of personal intercourse between members and representatives of different nationalities. Men and women are as a rule fond of foreign travel, and when pecuniary and other circumstances admit of it they must need take a trip through some other country than their own. Spain is now becoming a great rendezvous for Americans, English, French and Germans, but especially the former. Without the country had been opened up so far with railways these tourists would never dream of coming to spend some of their time and money visiting the antiquities of Ronda and Granada, the attractions of Seville and Cor-

doba and the relics of by-gone ages to be found in such abundance all over the beautiful region of Andalusia. The increase of railways has a tendency in every country to produce rest and peace, but in no other kingdom has this fact been better illustrated than in Spain. Every inch of country, therefore, that is opened up by railways, with their concomitant industrial and commercial enterprises, tends to accentuate and strengthen the foundations of society and chase away in a most amazing degree the dislike and distrust of one another, which had formerly been the bane and disgrace of so-called civilization.

As the iron highways of Spain grew and multiplied revolutions disappeared, and the industrial and commercial classes are now settling down to compete with the other nations of the world in all that tend to elevate, enrich and ennoble a nation naturally possessed of excellent sterling qualities, which only require to be known to be admired and appreciated. To the advent of the railway into Spain, therefore, must be traced the impetus her commerce and her industries have received during the last forty-five years, the increasing influx of visitors year after year, as well as the peace and good will that are ever on the increase; and what holds good of Spain must also hold good of other nations who have deliberately opened their hearts and their purses to scientific and enterprising men who are always ready to risk everything if only their most cherished objects can be attained.

THE RAILWAYS OF ITALY.

COUNT R. PIOLA CASELLI, GENERAL SECRETARY ROYAL ITALIAN
COMMISSION WORLD'S COLUMBIAN EXPOSITION.

In this honorable congress and in Chicago, the greatest railroad center in the world, I beg leave to say a few words in behalf of Italy, that being not the last country for importance of works and development of railroad commerce.

The discovery of the locomotive happened in the striking time of the Italian revolution, its application was developed in Italy with the development of the new Italian kingdom; therefore with the economical movement it has always followed the political movements too, making itself useful to commerce as well as to the national unification. And so when in 1860 in the southern provinces, subject up to that date to the Bourbonic domination, there existed but a single railroad and a very short one, yet in the remainder of the continent and especially in northern Italy in the vast plains of Piedmont and Lombardy where the independence wars were being fought and won, a very large system of railroads served already as a peaceful and useful communication.

When the unity of Italy was assured the initiating work of the government came to an end, and in Italy as in the other nations the inauguration and development of railways was allotted to separate companies, following thus the way opposite to that used in America where the

initiative is absolutely by private capital. Italy with courage and tenacity surmounted the great obstacles raised by political reasons and nature, and in a few years her railways reached a wonderful development, not only opening up the interior but connecting the country with the other nations and serving as an impulse to the international European movement. In 1871 the service of the first tunnel twenty miles long was inaugurated connecting France to Italy, which not only brought into communication two sister nations but made easy the intercourse between the extreme east and the far west of Europe and gave to the modern engineering one of the most important discoveries of the century, that of compressed air as a moving power. The India mail now goes through the Italian continent and that tunnel direct to London.

Wherever I turn in this great and free country the vastness of the railroad system creates in me always new wonders as I observe the work of your great companies, moved by the double aim of civilizing unfrequented lands and usefully carrying out some great financial speculation.

In Italy, where unoccupied lands do not exist any longer, the work of the railway cannot proceed as fast and imposingly as in America, but yet its course of civilization and progress is not stopped, and new railways are opened every year to put in communication large and small towns, from the tops of the mountains to the shore of the Mediterranean, never stopping before the difficulties arising from the exceedingly picturesque topography of the peninsula.

Four flourishing companies in Italy do the continent and island service as well. Their organization is one of the best in Europe, and this is shown by the fact that accidents very seldom happen, though our express trains run at high speed. The endeavor of our companies to protect by every means the life of travelers is not the least coefficient in the important development of railways in Italy.

The latest of our companies, organized with the aim of extending railways in the Sicilian island, has reached in a few years a most important position in the Italian railway federation. By reason of their activity and energy a system of railroads now runs all through the beautiful island and connects with the continental railroad, making commerce amongst the smallest village of the island and the remainder of the nation easier.

The late national exhibition at Palermo was owing mostly to the intelligent initiative of the Sicilian railway company, and the result obtained has shown that the boldness of the young company was not without results.

Yet though asserting the merits of the Italian railway I am thoroughly convinced how much we have to learn in the country of Cooper from the American railway system. America is an example to the world of the power, strength of will and knowledge of a very young and powerful people to whom nothing is impossible, and this study aided by the results that we are going to obtain from this World's Congress will always more illuminate the civil world, increasing fraternal ties amongst the peoples and universal prosperity.

In the name of Italy I greet all the persons gathered at this congress, and our neighborly brother of America who helped us in our enterprise and who has never been unworthy of the sublime boldness of their pioneer Columbo.

THE RAILWAYS OF SWEDEN.

BY DIRECTION OF CHIEF TRAFFIC MANAGER ROYAL STATE RAILWAYS, WRITTEN BY MR. GUSTAF WELIN, OFFICIAL IN HIS OFFICE.

[Read by Mr. Axel Welin, Secretary Royal Swedish Commission to the World's Columbian Exposition].

A long time passed before the Swedish nation could learn to appreciate the full importance of the mighty means of conveyance brought into practical life through the match at Rainhill between the two different locomotive types of Stephenson and John Ericsson. It was during the year 1856 that Swedish railways were first opened to the public. The cause of this delay must chiefly be attributed to an unfavorable climate and to the undeveloped state of industrial and agricultural interests of those times, as well as to our peninsular situation with its abundance of navigable lakes and rivers which naturally seemed to refer us almost exclusively to the far cheaper water communications. At last, however, when our people began to perceive the great advantages which would necessarily be derived from the new method of traveling by railway, there was a sudden change of public opinion in its favor. The capitalists of our country competed in their endeavors to furnish the different parts of the country with railways, and in less than eighteen years, or in 1874, Sweden had got a railway system, which in proportion to the number of our population took the lead of that of all European nations, a fact which still exists.

Contrary to the customs of England and America our railways belong to the so-called "mixed system," that is they are partly state and partly private property, but it must be observed that the state has granted important subventions, chiefly as loans on favorable terms, to many of the private railway corporations. The conditions of concession for private roads are also as liberal as possible. This dualism in the manner of viewing matters which characterizes our state as advancer of capital for our railway industry has greatly assisted the development of private railway enterprise.

The first state railway lines (from Gothenburg to Jönköping and from Malmö to Lund) were opened to the public on the 1st of December, 1856. Afterwards state railway building was carried on with such energy that during the year 1864 we got a direct rail communication between our three largest towns, Stockholm, Gothenburg and Malmö. Seven years later, or in 1871, the two countries of Scandinavia were connected with each other through the extension of the Northwestern main line to the Norwegian frontier at Charlottenberg and during the same year the connecting line through Stockholm was completed.

The Stockholm-Malmö line, most important to the international traffic of Sweden, was shortened during 1874 by the opening of the east main line (Katrineholm-Nässjö) and during the following year the south of

Northland, being by far the largest part of Sweden, was connected with the capital through the extension of the North main line to Storvik, from whence construction has continued uninterrupted, so that (during the year 1894) it is expected to be completed to Boden, not very far from the borders of Finland, Russia, and among other results communication will be effected with the Gellivara railway, the most northern railway in existence.

Regarding the extension of private railways in Sweden we may give the following data :

On the 5th of March, 1856, the first line, Örebro (Dylta) Nora, was opened, and during the year 1859 we got an important railway connection between the inner parts of the country and the shores of the Baltic through the opening of the Gefle-Dala railway. The entire length of railways at the end of 1859 was only 175 km. (108 miles) and even during the following decade there were only 415 km. (257 miles) of private railways built. All interest of this kind seems then to have been concentrated on the projection and execution of state railways. But in the beginning of the decade 1870-79 the construction of private railways was started with energy and owing to the unusually favorable conditions of trade in general they increased during this period with a length of more than 3,000 km. (nearly 1,900 miles) and *during the one year 1873 of nearly 1,000 km. (620 miles) a very considerable addition for our circumstances.* The length of our private railway is now 5,642 km. (3,500 miles) and since the year 1880 it has increased nearly 2,000 km. (more than 1,200 miles).

The most important of the private lines is the "Bergslagens railway," which connects the two towns Gothenburg and Falun, a distance of 486 km. The closest net of railways is laid in Skåne, a most fertile and richly populated province in the south of Sweden. As main lines, besides the long state railway stretching from Stockholm to the north, south and west, we can also characterize the private railways, Falun-Gothenburg-Helsingborg and Stockholm-Örebro.

An examination of the geographical situation of our railways shows that in their building three chief points are aimed at, namely, to get a communication, (1) between the remote north and south ; (2) between the interior parts with their local business centers and the harbors of the west and east shores, and (3) between the two kingdoms of Scandinavia.

(With the exception of the connecting line in Stockholm, the Swedish railways are all single tracked. The standard gauge of the state railways and that of 70 per cent of the private ones is 1.435 m. (4ft. 8½ in.) Among the latter railways are thirty-seven lines that have narrow gauge, varying between 1.217 and 0.600 m.)

As characterizing our railroads we may mention the great number of bridges which it has been necessary to build on account of the numerous water crossings, and of which many are quite grand. Some of these are a good proof of Swedish engineering skill, among these the bridge over the Dala river, which is 217 m. (712 feet) long and has seven arches, the longest of which is 47.5 m. (156 feet), and the bridge over the Ängerman river which is 262 m. (860 feet) long has five arches, of which the longest is 76.4 m. (240 feet), and is 40 m. (130 feet) above highest water level. Among other remarkable feats of engineering may be mentioned the connecting line through Stockholm with its tun-

nel 433 m. (1420 feet) long, two large bridges, long embankments and pilings, etc.

Regarding rolling stock it may be stated, as a general rule, that there being no actual Swedish system in construction the locomotives are mostly in accordance with English types and the carriages like the German. During later years the American system has also been coming into use.

The prevailing brake system comprises the automatic brakes of Körting and Smith-Hardy.

Among the different types of freight cars we may mention the twenty ton carriages on six wheels for transport of iron ore on the Gellivara line, and also the refrigerator cars for butter transport, with their three-fold walls and roofs, reservoirs for ice, etc., which are very suitable for their purpose.

The number of locomotives used on the Swedish railways is 900, wagons 2,000 and freight cars 21,000.

The administration of Swedish state railways is conducted by a direction appointed by the government. The private railways have their special directions, but in case of their having received state subvention the government appoints a representative member. Concession for private railways is usually granted by the government, which also, according to the right of economical legislation which our fundamental laws give to the king, settles the taxes and maximum tariffs of all railways in the country.

The general instructions for traffic both on state and private lines are also issued by the government; the more detailed regulations for the service, as regards signalling, rules for safety etc., are worked out by the Royal Railway Direction, both for state and private lines. Beyond this the private railways have perfect liberty for action, and there is no check put on their economical and administrative independence from the public. The directions are at liberty to permit, when so found suitable, all kinds of reduction in prices or other advantages for transportation on their own railroads. Reduction of tariffs on the state lines may be given by the Royal Direction only in case of clearly increasing traffic or revenues.

The system of private railways is divided amongst not less than 108 different owners. To prevent unfair competition, which was to be feared as a result of so many diverging interests, an association for inter traffic was organized in 1882, consisting of the state railways and nearly all the private companies. The fundamental rule of this association is that all transportation is to be made on the cheapest route. The good results of this institution have reached both the travelers and the railways themselves. The tariff which is the basis of all freight charges of this association is the same as used for all local transportation on the state lines. This tax, having been revised several times and in its present state the result of the work of a royal committee of 1888, is remarkable for its detailed classification of goods and its sharply falling rates for goods forwarded on longer distances. These rates are twelve in number besides three special ones, and are constructed to decrease in proportion to the distances. The rates for passengers are on the contrary not falling, but considerable reductions are granted for return journeys between two stations, and for season tickets, etc. The

burning question of reduced passenger rates will probably soon approach its solution, as the parliament has lately expressed a desire in this direction. A practical and clearly defined resolution in this matter will be of importance also as favoring the colonization of Northland from the southern parts of the country.

The number of employes required at present for the traffic on Swedish railways amounts to about 20,000, of which 12,000 have so-called ordinary or permanent employment. About half of these numbers belong to the state railway.

Employment and dismissal is done through the respective directions, and the state has not given any general rules regarding the staff of private railways, except in the matter of a careful examination of the eye in regard to colors. The direct supervision of employes is carried on by the heads of traffic service, who also exercise control over the starting and running of the trains, etc. No general rules are given for the length of the working day, but it is the endeavor especially with regard to the important and hard service of the train staff to make its work as easy as possible. The salaries are naturally very different on different railways and in different employments, but generally we can say that they are quite comparable with or even higher than those on the railways of our neighboring countries. The self-help system in the form of saving funds, life insurance associations, etc., is much used by the railway people over the whole country. In connection with this we may mention the pension funds, which are organized with the view of giving the employes fair pension in old age and support to their survivors. These institutions enjoy large subventions from the government and from interested private railways.

For strategical purposes several arrangements are made to enable us with the aid of our railways to meet an eventual attack. These arrangements are guided in the first place by a special division for communications at our military staff general. The task of this division is to make experiments and observations with regard to the means of conveyance in Sweden that they may be suitable for the defense of our country. There are also worked out detailed instructions for the use of railways in war, schemes for mobilization and concentration of the troops, etc. All new railway construction must be subjected to a preliminary examination by military authorities, and regarding these matters there exists a lively coöperation between the military and railway authorities.

At the end of 1892 the length of our state railways was more than 3000 km. and the length of the private ones, as before mentioned, was more than 5600 km. The cost of construction of all the railways in Sweden amounted at the end of 1892 to 560 millions of crowns (\$150,000,000) of which 300 millions (\$81,000,000) were paid for the state railways. The money for building the last mentioned railways is chiefly secured by public loans, partly from our own country and partly from abroad. In connection with this we may mention that our public debts are all contracted for railway undertakings. In subvention to private railways the state has appropriated 60 millions of crowns (\$16,000,000).

The number of persons traveling on our railways during 1891 amounted to nearly 14 millions, or *three times the number of our population*. The quantity of goods transported during the same year was 11 million tons. Our most considerable transport articles are timber,

agricultural products, especially corn, and mining products, as iron, ore and manufactured iron. The gross profit during 1891 amounted to nearly 50 millions of crowns (\$13,000,000), 33 per cent being the revenue of the passenger traffic. The clear profit exceeded 21 millions of crowns (\$6,000,000) of which six and one-half millions belong to the state railways; equal to 2.52 per cent on the capital invested in state railroads and 4.52 per cent on that invested in private roads. This last figure, 4.52 per cent, shows that our private railways are now-a-days a well-paying business and this fact may give increased weight to the plan of acquiring the most important of these lines for the state which is beginning to be more widely advocated, and which certainly concerns the most important question of the future of Swedish railroads.

It is difficult to give in exact figures the indirect gain from our railways, but the remarkable growth of our national resources during the last decades certainly corresponds with the origin and development of our railway system. The social history of Sweden since 1855 shows also the great interest of the country in the railway question, the national importance of which appears in still clearer light when it is remembered that our railways fulfill one of the most important conditions for a successful defense of the liberty achieved by our forefathers.

THE RAILWAY SYSTEM OF NEW SOUTH WALES.

HON. ARTHUR RENWICK, M.D., EXECUTIVE COMMISSIONER FOR NEW SOUTH WALES, WORLD'S COLUMBIAN EXPOSITION.

In order to summarize the information required by this congress on this important subject, as well as to submit for general information the more important facts and statistics connected therewith, I believe my best course on the present occasion will be to quote the official information of the government statistician as submitted to parliament for the year 1892, for the most part in the language of his own report. With regard to the extension of the railway facilities he remarks: The Australian colonies have always been distinguished by progressive ideas, and although the colonies contained only a small population when the railways were making their way in England, the question early received earnest consideration from the principal citizens of Sydney, then the only large center of population in Australia. It is difficult to say when the movement first commenced to assume a substantial form, but as far back as 1846 meetings were being held to press on the construction of railways, and the formation of a railway company mooted. At this time the population of the whole of Australia was 227,144 only, and of this number 155,000 persons were located in New South Wales.

The first railway company assumed a definite form in 1849, and this had for its object the construction in the first instance of the railway to Parramatta and Liverpool. From this small beginning the large railway enterprise of Australia, excluding Tasmania and New Zealand, has

grown into a system of 9,000 miles of railway, and a combined capital of at least \$465,000,000.

The birth of the railway system may be said to date from the 3d of July, 1850, when Lady Keith Stewart, the wife of the then governor, turned the first sod of the New South Wales railway. The progress of the initial line was very slow, financial and labor troubles handicapping the private company, the government finally having to step in and take over the line, which, as a going concern, was by a happy coincidence opened on the anniversary of railways in England, viz., the 27th of September, 1855; the colonial line, however, being 30 years later.

Since then the lines have progressed, considering the population of the colony, at a rapid rate, the length of passenger lines in the colony being 2,393 miles, including 2,314 miles controlled by the government, and laid down on the English standard gauge of 4 feet 8½ inches, and two important private lines, viz., the Denilquin and Moama line (45 miles), which connects with the Victorian system at Echuca (opposite Moama on the Murray), and the private line from Silvertown and Broken Hill to the South Australian border.

The following table shows the number of miles of lines opened in each year, as well as the total length opened:

Year.	Opened.	Total.	Year.	Opened.	Total.
1855.....	14	14	1874.....	nil	403
1856.....	9	23	1875.....	34	437
1857.....	17	40	1876.....	72	509
1858.....	15	55	1877.....	89	598
1859.....	nil	55	1878.....	90	688
1860.....	15	70	1879.....	46	734
1861.....	3	73	1880.....	115	849
1862.....	24	97	1881.....	146	995
1863.....	27	124	1882.....	*280	1,275
1864.....	19	143	1883.....	52	1,327
1865.....	nil	143	1884.....	298	1,625
1866.....	nil	143	1885.....	114	1,739
1867.....	61	204	1886.....	157	1,896
1868.....	43	247	1887.....	†152	2,048
1869.....	71	318	†1888.....	78	2,126
1870.....	21	339	†1889.....	45	2,171
1871.....	19	359	†1890.....	11	2,182
1872.....	40	398	†1891.....	nil	2,182
1873.....	5	403	†1892.....	3	2,185

* Year ended June 30. † Inclusive of Campbelltown-Camden line. ‡ Inclusive of Kogarah-Sans Souci line.

Of the 2,185 miles in operation in June, 1892, 2,033 miles were single lines, 143 miles double, and 8 miles of line with four tracks.

EXTENSION OF RAILWAY FACILITIES.

The progress of the accommodation afforded by the state railways of the colony can be fairly gauged by comparing the number of persons at different periods to each mile of line open for traffic, and the number of train miles per inhabitant. Thus in 1860 there were 4,979 persons to each mile of line, but by the end of the year 1880 the work of construction was so much in excess of the increase of population that the proportion per mile had fallen to 881 persons, so that the facilities afforded by the railways were more than four times as great as in the year first named, while in 1892 the population per mile of line was

reduced to 541. The increase in the number of train miles per inhabitant has been very rapid, rising from 0.5 miles in 1860 to 1.8 in 1870, 4.5 miles in 1880 and 7.4 in 1890, the 1892 figures being a little below those of the year last named. The following statement illustrates the extension of railway facilities for 1860 and subsequent periods :

Year.	Population to each mile of line.	Number of train miles run.	Number of train miles run per head of population.
1860	4,979	174,249	0.5
1865	2,861	483,446	1.2
1870	1,471	901,139	1.8
1875	1,360	1,472,204	2.5
1880	881	3,239,462	4.5
1885	546	6,638,399	7.2
1886	522	6,479,265	6.7
1887	498	6,472,107	6.4
*1888	487	6,689,313	6.6
*1889	491	7,641,769	7.3
*1890	505	8,008,826	7.4
*1891	524	8,410,421	7.5
*1892	541	8,356,096	7.2

* Year ending June 30.

COMPARISON WITH OTHER COUNTRIES.

Points of comparison between a large and thinly inhabited country such as New South Wales and the countries of the old world are difficult to obtain. The following table, however, illustrates the population and area in square miles of territory per mile of line open in the principal countries of the world, compiled from the latest returns. It will be seen that New South Wales comes fairly well out of the comparison :

Countries.	Length of railway. Miles.	Population per mile of line.	Area per mile of line. Sq. miles
Australasia, including private lines:			
New South Wales	2,266	521	137
Victoria	2,903	399	30
South Australia	1,679	191	226
Queensland	2,320	176	288
West Australia	656	81	1,616
Tasmania	425	359	62
New Zealand	2,013	315	52
America:			
Argentine Republic	7,210	567	156
Brazil	5,546	2,525	570
Canada	14,004	370	247
Chili	1,801	1,508	163
United States of America	158,037	396	23
Europe:			
Austria-Hungary	15,854	2,595	15
Belgium	2,819	2,168	4
France	22,911	1,668	9
Germany	25,411	1,948	8
Gt. Britain and Ireland	20,073	1,880	6
Italy	7,619	4,061	15
Netherlands	1,632	2,787	8
Russia	21,116	4,540	99
Asia:			
India (British)	16,095	13,068	66

PRIVATE LINES.

Two private lines of railway, 45 and 36 miles in length respectively, were in operation during 1891, connecting the important towns of Moama and Deniliquin, and Silverton and Broken Hill. The first named line virtually forms an extension of the Victorian railway system from Melbourne to Echuca. The following figures relate only to lines under government control.

The capital expended on all lines at the close of June, 1892, amounted to \$166,563,040. The amounts expended on lines opened during each year from the commencement of the railway system, will be found in the following table.

Year.	Capital expended on lines open.	Year.	Capital expended on lines open.
1855.....	515,347	1886.....	24,071,454
1860.....	1,422,672	1887.....	26,532,122
1865.....	2,746,373	*1888.....	27,722,748
1870.....	5,566,092	*1889.....	29,839,167
1875.....	7,245,379	*1890.....	30,555,123
1880.....	11,778,819	*1891.....	31,768,617
1885.....	21,831,276	*1892.....	33,312,608

* Year ended June.

LENGTH OF RAILWAY LINES.

The colony of New South Wales stands in a good position among the Australasian colonies in regard to railway development, as will be seen in the following table, which shows the length of lines open for traffic in the various colonies up to the end of June, 1892:

Lines opened.	Government Miles.	Private Miles.	Total Miles.
New South Wales.....	2,185	81	2,266
Victoria.....	2,903	.....	2,903
Queensland.....	2,320	.....	2,320
South Australia.....	1,666	13	1,679
Western Australia.....	203	453	656
Tasmania.....	377	48	425
New Zealand.....	1,871	142	2,013
Total.....	11,525	737	12,262

RAILWAY SYSTEMS OF THE COLONY.

The railway system of the colony is divided into three distinct branches, each representing a system of its own.

The southern system, including the principal line in the colony, branches at Junee, and places the important district of Riverina, as far as the town of Hay in one direction, and Jerilderie in another, in direct communication with Sydney—from which they are distant 454 and 412 miles respectively. From several other points of the line, branches connecting other important districts with the metropolis have been opened for traffic, or are in course of construction. At Cootamundra a line has been laid down, which now reaches Gundagai, whilst from Murrumburrah a line has been constructed which connects Blaney on the western line with the southern and western systems of New South Wales railways. This practically enables direct railway communication to be made between Melbourne and Bourke, the capital so to speak

of Central Australia ; and the branch line has been found of much benefit in allowing the direct shipment of stock from the pasture grounds to the Victorian markets. Nearer Sydney the important town of Goulbourn will be the center of a system of branch lines, one of which, that from Goulbourn to Cooma, is already built and brings the rich pastoral district of Monaro in direct communication with Sydney. Further west a branch line from Cootamundra to Temora is under construction, while a branch line from Culcairn to Corowa, on the Murray, has just been completed.

The southern main line is the most important of the railway lines in the colony, as it passes through the richest and most thickly populated districts, and places the four great capitals of Australia—Brisbane, Sydney, Melbourne, and Adelaide—in direct communication with one another. It was not till 1883 that this line was actually open for traffic, the railway bridge across the Murray river, which flows between Wodonga, the Victorian terminus, and Albury, the terminus of the southern line of New South Wales, having been completed in that year. The traffic both of passengers and goods on the southern system generally is very extensive, and arrangements for the regular carriage of mails between the two great cities enable letters to be delivered in less than twenty hours. Sleeping cars are attached to these trains, on the New South Wales side, and the comfort of travelers is assured by the introduction of the most modern improvements in the construction and fitting up of the railway carriages. Since the completion of the railway from Melbourne to Adelaide, a distance of 508½ miles, European mails are landed at the latter port and forwarded overland to all parts of Victoria, New South Wales, and Queensland.

The western system of railways extends from Sydney in the direction of the Blue mountains, of which it reaches the upper levels a little above Emu plains, by a system of zig-zag lines which enables the locomotive to drag its heavy freight up the abrupt eastern slope of the mountains. The line runs along the top of the range, until it descends into the valley below Mt. Clarence, by another and more important zig-zag, the construction of which is a triumph of engineering skill. In its course between these two zig-zags the line passes through magnificent mountain scenery of a character peculiar to this part of the world, and none the less remarkable. Leaving the mountains the Western railway, after throwing out a branch from Wallerawang to Mudgee, enters the Bathurst Plains, and connects the rich agricultural lands of the Bathurst, Orange, and Wellington districts with the metropolis. Beyond Dubbo it enters the pastoral country, and reaches the Darling at Bourke, 503 miles from Sydney.

At Orange a branch line, twenty-two miles in length, connects that town with Molong. This line is now being extended to Parkes and Forbes, and the extension will probably be opened for traffic before June 1893. Further up, at Nyngan, 377 miles from Sydney, a branch line has been opened, connecting the important mining district of Cobar with Sydney, affording at the same time rapid and sure means of communication with the pastoral country of which Cobar is also the center. This line, it is expected will eventually be continued as far as Wilcannia, on the Darling, whence it may be extended to the silver fields of Silverton and Broken Hill. The Western railway system also includes

a short line from Blacktown to the Hawkesbury, via the towns of Windsor and Richmond.

The northern system originally had its terminus at Newcastle, but a connecting line between Homebush and Waratah has been constructed, which makes Sydney the head of the whole of the railway systems of the colony. The Hawkesbury river has been crossed by an iron bridge 2,896 feet long, in seven spans, the iron superstructure of which cost \$1,635,000. This connecting line allows direct communication between Adelaide, Melbourne, Sydney and Brisbane, a distance from end to end of 1,808 miles, and has been found of great value to those requiring quick transit and for the carriage of postal matter. It facilitates, moreover, the active business life of the colonies, and will be of national importance, should at any time strategic movements require to be made in connection with military operations.

The Northern line runs via Newcastle and the great coal center, through the rich agricultural district of the Hunter valley, to the important part of the colony known as New England; passing through some of the largest inland towns in New South Wales, such as Maitland, until lately the fourth town in the colony in point of population, being surpassed only by the city of Newcastle and the town of Parramatta before Broken Hill attained its present development. The country traversed by this line north of Newcastle is extremely fertile. As the line ascends further north, it passes through a rich pastoral and agricultural territory, and some important townships are reached, viz., Tamworth, Armidale, Glen Innes, and Tenterfield, and eleven miles beyond the last mentioned township the line crosses the border at Wallangarra or Jennings where a junction is effected with the Queensland railways.

The Northern system also comprises a branch from Werris Creek to Narrabri, where it has been proposed to extend as far as Moree in the northwest, and to Darling in the west, thus placing the Namoi and Gwydir pastoral districts in direct communication with the ports of Newcastle and Sydney.

In the New England district a line has been long projected which would connect the town of Glen Innes with that of Inverell on one side, and with the city of Grafton, on the Clarence, on the other; an alternative line has been surveyed to connect the Clarence and New England districts, a proposed junction on the Northern line being at Llangothlin, but both this route and the one proposed from Glen Innes to Grafton, present physical difficulties of such a magnitude, that it is doubtful if either lines will be carried out at all events for some time to come.

STEEP GRADIENTS.

The New South Wales railways have been constructed with a large proportion of steep gradients. There are 629 miles of grades varying from one in thirty to one in seventy-five, the worst of these being on the trunk line, and so situated that the whole volume of traffic has to pass over them. The railway commissioners in their last annual report have drawn a comparison between the New South Wales lines and the Alpine railways, and it is found that the gradients are steeper and the curves sharper on the lines of this colony than on the Alpine lines. In order to facilitate the working of the traffic, the commissioners introduced last year a more powerful class of engines, both of English and American

manufacture, which have materially assisted the working of the lines. There are now completed four lines along the suburban section, a distance of eight and one-half miles, and a double line for traffic out of Sydney as follows: South Coast line to Waterfall, 24 miles; Main Southern line to Picton, 53 miles; Main Western line to Penrith, 34 miles, and North Coast line to Hornsby, 21 miles.

CAPITAL SPENT.

The capital spent on lines under construction, on the 30th of June, 1892, was \$4,609,430, which includes \$1,226,130 for the Nyngan to Cobar line, opened for traffic on the 1st of July, 1892.

It was not until the line crossed the mountains and opened up the far interior, that the goods traffic became the principal source of revenue of the railways. This change began to take place in 1867.

EXTENSIONS IN THE INTERIOR.

During the years 1884 and 1885 the last section of the Main Western line extending over a distance of over 112 miles, as far as Bourke was opened, and the line branching off from Wallerawang completed as far as Mudgee, 63 miles being open. On the South Western railway the branch line Narandera to Jerilderie covering a distance of 65 miles, was open for traffic. All of these extensions run through very sparsely settled districts, and this was the case with regard to nearly the whole of the other 172 miles opened during the two years mentioned. This total of 412 miles opened for traffic in unproductive country, caused a serious falling off in the proportion of receipts to expenditure, during the period ending June, 1888, the net revenue yielding less than 3 per cent on the total expenditure.

Since then the returns have improved step by step, rising in the year 1891 to 3.6 per cent, at which it has since been maintained. In the railway report of 1892 a return is given, comparing the net results of lines which are not at present paying interest, for the three years 1887, 1890, and 1891, and from the progress which the latter years show over the former, there is every probability that in the near future the lines mentioned will earn sufficient to pay the interest on their cost. The fact that the lines as a whole have not returned a profit should occasion no surprise, as the statistics of railways in all parts of the world show that few lines, except perhaps suburban ones, return anything like a profit during the first few years after their opening.

In England a period of seven years has been allowed by good authorities for a line to develop traffic; and if such is the fact in more densely populated countries, whose resources are more developed than is the case in New South Wales, there is every reason to be satisfied with the fact that the lines of this colony have yielded so good a return as they have. And there is good cause to hope that under the present administration of the railways, the deficiency will soon be met, as the returns for the year ended June 30, 1892, show that the interest on cost of construction was covered all but 0.24 per cent.

SCHEME FOR THE CONSTRUCTION OF NEW RAILWAYS.

The railway commissioners in their annual report for 1891 suggest a plan for paying for new lines by the sale of lands. They recommend that the crown lands for a distance of ten miles each side the proposed railway should be set aside for sale, and half the proceeds of the land sold to be credited to the railway capital; and where the land required, for railway construction has passed into the hands of private individuals, that the land owners should combine and convey the necessary land free of cost to the government, it being considered that the owners will be fully remunerated for the gift of the land by the enhanced value of their property, through direct railway communication being established with the other parts of the colony. By the adoption of this system it is believed that railways in light undulating country could be constructed at a moderate cost, and yield a fair return on capital from the commencement, especially what are known as "pioneer railways," which could be constructed at an average of \$8,750 per mile, exclusive of bridges.

THE BETTERMENT SYSTEM.

The betterment system as applied to railways, was first introduced in the construction of the Culcairn to Corowa railway. No special act has been passed for the general establishment of this principle, but by a proviso in a clause of the public works act the government were empowered to apply the principle to all railways constructed subsequently to the date of the passing of the act. In estimating the enhanced value of the land adjoining the Culcairn to Corowa railway line, now just completed, the stations were assumed to be 10 miles apart, the betterment area having a five miles radius from each station, and the land in the vicinity of each station being considered to have an enhanced value of 25 per cent, graduating to 5 per cent at the limit of the radius. In the case of the extension of the railway along the southern coast, it is found that the enhanced value does not reach so high a percentage, owing to the facilities which exist for the transport of produce, etc., by water. The following table shows the cost of construction of the various branches of the railway system of the colony to the middle of the year 1892.

AVERAGE PER MILE.

The average cost for the whole of the lines is calculated to be \$64,870 per mile, including all charges, except for rolling stock, machinery and workshops, a figure which, considering the character of some parts of the country through which the lines have been carried, and the cost of labor, which is considerably greater in Australia than most other countries, is by no means a high one:

LINES OPENED FOR TRAFFIC.

	Miles.	Total Cost.	Cost per Mile.
Darling Harbour Branch	1	\$ 1,785,585	\$1,785,585
Sydney to Granville	13	9,216,740	708,980
Haslems Creek Branch	1½	32,295	64,590
Granville to Wogonda	37½	4,877,481	65,120
Juncce to Hay	167	4,750,790	28,445
Narandera to Jerilderie	65	2,047,405	31,495
Granville to Bourke	490	26,715,200	54,520
Wallerawang to Mudgee	85	4,905,210	57,705
Blacktown to Richmond	16	875,290	54,705
Goulburn to Cooma	127½	7,016,100	55,025
Cootamundra to Gundagai	34	1,190,260	35,000
Orange to Molong	22	1,346,645	61,210
Murrumburrah to Blayney	106	5,390,800	50,855
Sydney to Kiama	70	9,727,955	138,970
Homebush to Waratah	93½	11,690,735	125,730
Newcastle to Wallangara	391	24,653,275	63,050
Werris Creek to Narrabri	57	2,826,290	29,135
Bullock Island Branch	1½	426,746	284,495
Morpeth Branch	4	304,475	76,120
Hornsby & St. Leonards	11	1,064,900	96,810
Campbelltown to Camden } Tram	7½	194,635	25,950
Kogarah to Sans Souci } Lines	5	60,555	12,110
Yass Tramway	3	135,205	45,070
	2185	141,744,500	64,870

The amount expended on rolling stock to the period named, was \$20,236,580; for machinery, \$1,375,445; workshops, \$3,159,350; and furniture, \$47,165, or \$24,818,540. This makes the total cost of all lines open for traffic, \$166,563,040, or an average on all charges, of \$76,230 per mile.

The cost of railway construction in some of the principal countries of the world for which figures are available, is given hereunder: The figures include the whole expense of equipping the lines for traffic, and are brought down to the latest dates available: United Kingdom, \$219,775 per mile; United States, \$61,940; New South Wales, \$76,230.

EARNINGS AND WORKING EXPENSES.

The gross amount of revenue derived from all sources during the year ended June 30, 1892, was \$15,536,480, a larger sum than was attained in any previous year. The cost of working the railways reached \$9,571,260, and the net earnings were \$5,965,220, or 38.4 per cent of the total earnings, as against 33.3 per cent when the commissioners took office.

In the year 1860 the earnings from passenger traffic largely exceeded those from goods, but after that year the proportion declined, reaching the minimum in 1875. This falling off was almost entirely due to the considerable extension of the main line through pastoral country, thinly populated but well stocked with sheep and cattle, and consequently furnishing the railway with large quantities of produce for carriage to the seaboard. Since 1880, however, the percentage of receipts from passengers has advanced, and now constitutes about 38.3 per cent of the total revenue, figures which compare not unfavorably with those obtained on the English lines from the same source—44 per cent.

The net revenue for the year which expired on the 30th of June, 1892, was \$5,965,220, while the total amount of capital expended on lines in

operation to the same period, was \$166,563,040. The net return on the capital expended equaled 3.581 per cent, which, with the exception of that realized in 1891, is the most satisfactory return obtained since 1884, and as will hereafter appear only 0.24 per cent below the average interest payable on all outstanding loans of the public debt.

Under the control of the commissioners the net return per train mile has increased from 55 cents to 68 cents, or 25.2 per cent, while per mile of line open for traffic the advance has been from \$1,870 to \$2,735, or 46.3 per cent.

TRAFFIC, MANAGEMENT, ETC.

The number of journeys made by each person in the colony, now averages 17.1 per annum, as against 7.5 in 1880, and 1.6 in 1870. The increase has been exceedingly rapid as well as fairly uniform. The average number of journeys performed by inhabitants of the United Kingdom is 22.4, which largely exceeds that of any other population. With this exception, railway travelling is more common in Victoria, South Australia and New South Wales than in any other country.

The traffic on the suburban lines, which include only distances within twenty miles of Sydney and Newcastle, Liverpool and Morpeth included, has enormously increased of late years. Total passenger journeys for 1892 being 16,966,855.

The average receipts from passenger traffic per head of population have very rapidly advanced and for 1892 stood at \$6.19, as against \$2.66 in 1880, and \$1.18 in 1870. This is not due, as might be supposed to the increasing distance travelled by passengers, so much as to the fact that the railway mileage has increased at a greater rate than the population, enabling the public to indulge in a larger measure of railway travelling, in accordance with the well established rule that the more facilities for travelling are extended the greater will the traffic be. In this connection it may be interesting to note that the fares charged on the suburban lines over which the majority of passengers travel are very much less for both classes of travellers than the English rates although the cost of working is very much higher.

The weight of goods carried per head of population in New South Wales compares favorably with that of many countries where railways have been long established. The largest amount of tonnage per inhabitant is in Scotland, where it averages 10.4, the lowest European countries are Italy, Russia, and Austria-Hungary with only 0.5.

The traffic business has expanded to a very great extent in recent years. It is very satisfactory to note that although all the main trunk lines have been constructed for several years past the volume of goods carried is still increasing faster than the population.

The charge per ton per mile was in 1872 \$0.07, and in the year 1891 had fallen to \$0.03. Some of the decrease however is more apparent than real, inasmuch as it represents a more extensive development of the mineral trade than of the carriage of general merchandise. The revenue from goods traffic per inhabitant rose rapidly from the opening of the lines until the year 1883, when it stood at \$7.58, at which figure it remained in 1884 also. The unfavorable seasons experienced during the subsequent years greatly affected the traffic, which in 1888 had fallen to \$6.75 per inhabitant. Since that year there has been a steady

increase, and in 1892 the amount stood at \$8.22—the highest figures yet attained.

The rolling stock of the New South Wales railways on the 30th of June, 1892, consisted of 489 locomotives, 1054 coaching stock, and 10,455 goods vehicles, making a total of 11,998 stock, and showing an increase of 50 locomotives, 31 coaching stock and 515 goods vehicles over the stock of the previous year. The number of engine miles run was 12,362,105, while the train miles numbered only 8,356,096.

There were altogether 10,638 persons employed by the railway department, of which number 1,602 comprised the salaried staff, and 9,036 were on wages.

The management of the state railways in 1888 was transferred to the department of the colonial treasurer, and the actual administration of the railways was entrusted to three commissioners, to whom were given very extensive powers, amounting in fact to almost independent control.

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